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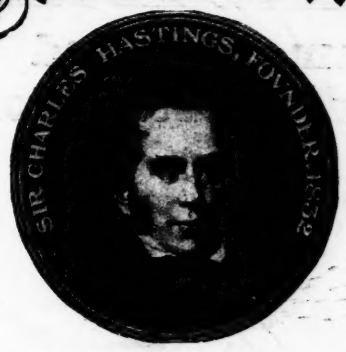

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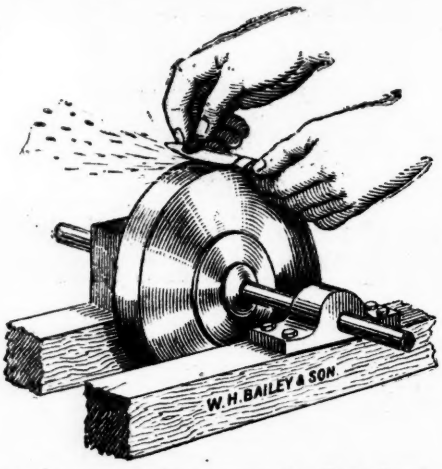

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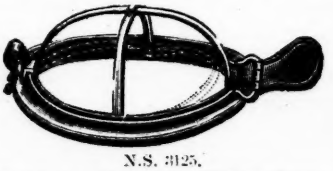

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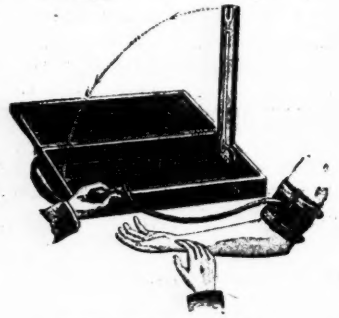

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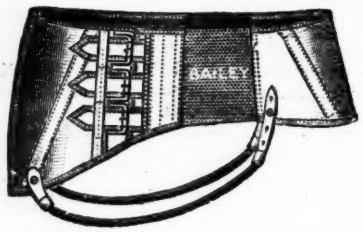

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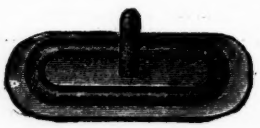

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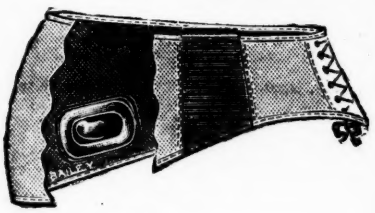

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HALF A CENTURY OF SMALL-POX AND VACCINATION.

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.
BY
JOHN C. McVAIL, M.D., LL.D.

INTRODUCTORY.

In beginning these lectures I crave permission to strike a personal note. It happens to be just fifty years since I entered on the study of medicine at the old College of Glasgow. The pandemic of small-pox which had started before, but was greatly favoured by the Franco-Prussian war, reached Glasgow in 1871. At first some cases of the disease were treated in the Fever House of the Royal Infirmary, so that students had opportunity of seeing small-pox in the wards, though spread of infection among patients soon caused its exclusion. In 1873–74 the epidemic reached the town of Kilmarnock in Ayrshire, where I had just begun practice and where the outbreak could be watched from beginning to end. A few years later my interest was stimulated by the discovery of a local register of mortality covering the period 1728 to 1764. Publication of the facts as to the ravages of small-pox revealed in this record led to further discussion of the whole subject, which again resulted in my giving lengthy evidence before the Royal Commission on Vaccination. Also, as Medical Officer of Health for Kilmarnock and subsequently for the counties of Stirling and Dunbarton, various opportunities of dealing with the disease, especially from the preventive and administrative sides, fell to my lot, and now my thanks are due to the Royal College of Physicians for giving me the opportunity, through the Milroy Lectureship, of endeavouring to sum up the opinions or conclusions which have formed themselves in my mind in the course of these fifty years.

It will be convenient to treat the subject in three sections:

I. Small-pox as it was and is.
II. Vaccination as it was and is.
III. Control of small-pox in the present day.

I. SMALL-POX AS IT WAS AND IS.

How does the small-pox of the present compare with the small-pox of the past in respect of (*a*) fatality, (*b*) infectivity, and (*c*) prevalence?

(*a*) FATALITY.

The literature of small-pox in the days before vaccination depicts it as a disease of normally high fatality, with occasional outbreaks of a very mild character. Wagstaffe's statements: "There is scarcely, I believe, so great a difference between any two distempers in the world as between the best and worst sort of small-pox"; and "there is one sort in which a nurse cannot kill, and another which even a physician can never cure,"[1] may no doubt be explicable on the supposition that he did not distinguish between variola and varicella. Even Sydenham's reference to variolous fever without eruption might be attributed to his theory of epidemic constitution of the atmosphere having caused him to regard febrile illness during an acknowledged small-pox epidemic as due to the existing atmospheric constitution. Such terms as windpock, waterpock, stonepock, swinepock, and nirlepock, may often have meant small-pox much modified, though not absolutely prevented by previous inoculation. There is, however, unquestionable evidence of exceptional mildness of type in the small-pox of 1789, which Jenner proposed to utilize for establishing a mild sort of inoculation, milder even than the Suttonian then in vogue. Also, in 1806, Adams of the Small-pox Hospital in London gave the name pearl-pox to a much modified variety which then prevailed.

Prior to the Acts for notification of infectious diseases (adoptive in 1889, compulsory in 1899) fatality rates in modern times are to be learned mainly from hospital practice, and those which I am about to give include both vaccinated and unvaccinated. Until the pandemic of 1870–73, for hospital statistics in this country we have to depend on the London Hospital for Small-pox and Vaccination, which originated in 1746 as the Hospital for Small-pox and Inoculation.

In 1836–51 Marson at that hospital had 5,982 cases with 1,279 deaths, or 21.38 per cent.

This period includes the first of the two greatest epidemics of the nineteenth century—those of 1837–41 and 1870–73. Marson's predecessor, Dr. George Gregory, records for the epidemic year 1838 694 cases with 188 deaths, or 27.1 per cent.[2]

The European Pandemic of 1870–73.

By 1870–73 the practice of vaccination in Britain had greatly extended, and affected the gross fatality rates.

The first hospital of the Metropolitan Asylums Board was opened at the end of 1870, and the following rates are given for the metropolitan area in 1870–72:

> Number of cases, 13,721; deaths, 2,557=18.6 per cent.
> Glasgow in 1871–74[3] had 4,328 cases, with 786 deaths=18.1 per cent.
> In Cork Street Hospital, Dublin, in 1871–73 there were 746 cases, with 162 deaths=21.6 per cent. In the same institution in four years beginning April 1st, 1876, the figures were: 2,404 cases, 523 deaths=21.7 per cent.

Between the pandemic of 1870–73 and the epidemic of 1892–95 about to be considered, mention may be made of two local epidemics:

> Sheffield, in 1887–88, had 4,677 cases, with 474 deaths =10.1 per cent.
> Bristol, in the same period, with 327 cases, had 37 deaths =11.3 per cent.

The epidemic of 1892–5 was of wide extent. In the Metropolitan Asylums Board's institutions there were in 1893–94: 3,493 cases, with 282 deaths=8.1 per cent. If the four years 1892–95 be taken instead of the two years 1893–94, the fatality rate is almost identical: 4,759 cases, 381 deaths=8 per cent.

The following figures relate to outbreaks in various places in the provinces. The disease prevailed chiefly in Lancashire and Yorkshire, but also further south.

TABLE I.
Small-pox Fatality Rates.—Provinces.
Epidemic 1892–95.

Place.	Time.	Cases.	Deaths.	Percentage.
Middlesbrough ...	1893-4	115	11	9.6
Liverpool	1893	194	15	7.7
Manchester	1892-4	996	68	6.8
Salford	1892-5	175	22	12.7
Warrington	1892-3	598	60	10.0
Oldham	1894	165	22	13.3
Halifax	1892-3	513	44	8.6
Bradford	1893	935	100	10.7
Hull	1893-4	205	12	5.9
Leeds	1893	585	30	5.1
Brighouse	1892-3	150	18	12.0
Sheffield... ...	1892-4	157	9	5.7
Keighley	1893	72	7	9.7
Derby	1893 and 1895	135	15	11.1
Nottingham	1893	53	6	11.3
Leicester	1892-3	347	21	6.1
Hinckley	1894	118	10	8.5
Birmingham	1893-5	3,153	248	7.9
Aston Manor	1893-4	315	29	9.2
Walsall	1893-4	945	83	8.8
Willenhall	1894	842	47	5.6
Bristol	1893-4	366	36	9.8
St. Albans	1893	58	6	10.4
Edinburgh	1892-5	697	73	10.5
Glasgow...	1892-5	750	58	7.7
Dundee	1892-5	22	2	9.1
Rest of Scotland ...	1892-5	443	34	7.7
Dublin (H)	1894-5	796	96	12.1
		13,899	1,182	8.5

The fatality rates in London and the provinces are so approximately equal in the early nineties as to show that the same general type of disease prevailed throughout the country as a whole. This was the first extensive epidemic since the seventies, and small-pox showed itself a much less fatal disease.

The Epidemic of 1902–5.

We come now to the most recent extensive prevalence of small-pox in Britain, and that is so long ago as 1902–5.

Summarizing the London statistics from 1870 to 1902

the Metropolitan Asylums Board has recorded for the sphere of its own operations fatality rates as follows:

1870–72	... ...	18.8 per cent.
1876–78	... ...	18.2 ,,
1879–83	... ...	16.5 ,,
1884–85	... ...	15.9 ,,
1892–93	... ...	8.0 ,,
1901–2	... ...	16.8 ,,

The data on which these rates are based are:*

Period.	Cases.	Deaths.
1870–72	13,721 ...	2,557
1876–78	13,208 ...	2,410
1879–83	14,558 ...	2,329
1884–85	12,509 ...	1,992
1892–93	3,493 ...	282
1901–2	9,659 ...	1,629

It will be at once observed that the progressive decline in fatality which had gone on from 1870–72 to 1892–93 was abruptly broken in 1901–2 in London. The data are: 9,659 cases, 1,629 deaths = 16.8 per cent.

In Middlesex in 1901–2 the disease was of the London type, thus: 1,868 cases, 301 deaths = 16.1 per cent.

In the Provinces.

At this time the Local Government Board were obtaining from London and from nearly all provincial towns of over 25,000 inhabitants, as well as from others of smaller population, weekly returns of notifications, and issuing a weekly statement to the medical officers of the towns taking part in the scheme. The aggregate population thus dealt with altered as the returns increased, but the total (including London) was between 19 and 20 millions of the 32 millions in England and Wales. In the provinces in 1902–6 inclusive the cases thus reported were 23,883 and the deaths 1,649, or 6.9 per cent.

Turning now to detailed statistics of the provinces for this epidemic, I have gathered from various sources the data of many outbreaks from 1900 to 1905, according to

TABLE II.

Small-pox Fatality Rates.—Provinces.
Epidemic 1901–5.

Place.	Time.	Cases.	Deaths.	Percentage.
Newcastle	1903–5	628	28	4.5
Tynemouth...	1902–5	328	17	5.2
Chester-le-Street	1903–4	106	6	5.7
Wigan	1902–3	70	1	1.4
Blackburn	1902–3	141	5	3.5
St. Helens	1902–5	66	3	4.5
Sunderland	1902–3	66	4	6.1
Liverpool	1902–3	2,280	159	7.0
Manchester	1902–4	563	33	5.9
Salford	1902–4	262	12	4.6
Preston	1904–5	172	8	4.7
Macclesfield	1903–4	69	5	7.2
South Shields	1902–5	272	14	5.1
Oldham	1902–3	413	32	7.7
Chadderton...	1902–5	144	5	3.5
Stockport	1902–4	159	15	9.4
Warrington...	1903	86	4	4.7
Heckmondwike	1904	91	5	5.5
Batley...	1904	103	6	5.8
Dewsbury	1904	552	57	10.3
Bradford	1901	28	0	0.0
Halifax	1903	141	6	4.3
York	1902–4	39	7	17.9
Leeds	1902–5	690	35	5.1
Hull	1903–4	184	10	5.4
Sheffield	1902–4	141	5	3.5
Derby...	1903–4	255	5	2.0
Nottingham...	1903–5	479	17	3.5
Bristol	1903–6	125	4	3.2
Birmingham	1902–5	364	17	4.7
Leicester	1902–4	731	30	4.1
Cardiff	1901–5	96	5	5.2
Swansea	1902	187	33	17.1
Portsmouth...	1902–5	20	1	5.0
Ilford	1900–4	82	9	11.0
County Palatine of Lancaster	1902–6	2,502	118	4.7
Durham County	1902	35	1	2.9
West Riding (including Dewsbury)	1903–4	3,296	215	6.5
Northamptonshire ...	1902–3	44	9	20.5
Ossett Union	1902–3	519	61	11.8
Nottinghamshire	1903–5	376	14	3.7
Edinburgh	1900–4	191	16	8.4
Glasgow	1900–2	2,255	283	12.5
,, ...	1903–4	1,158	88	7.6
Dundee	1900–4	175	12	6.9
Rest of Scotland	1900–4	2,844	235	8.3
Dublin (H)	1903–4	243	33	13.6

* If 1870–73 be taken instead of 1870–72 the figures are: 16,080 cases, 3,024 deaths = 18.8 per cent.; and if 1892–95 be taken instead of 1893–94 the statistics are: 4,759 cases, 381 deaths = 8.0 per cent. There is a slight discrepancy as to the 1870–72 rate; the data give 18.6 not 18.8 per cent.

the spread of the disease in different localities. Table II records the figures. It will be seen that, as contrasted with London's reversion to a higher fatality rate, there was a further and appreciable decline from 1892–95, many of the rates being round about 5 per cent., and several well below that figure—even 2, 3 and 4 per cent.

These facts, with due reservation for vaccination and diagnosis, show unequivocally a milder epidemic type in the provinces at this period than had been known since reliable statistics on any extensive scale became available.

In the metropolitan area itself in 1903 there was some prevalence, not, however, by extension from 1901–2, but by infection from the provinces and elsewhere. The cases were 355, and, allowing for a few remaining in the wards at the end of the year, the fatality rate was only 3 per cent. In Middlesex at this time the disease was no less mild, there having been in 1903–5, 185 cases with 5 deaths, or 2.8 per cent.

Clinical Observation of Small-pox.

The tables of statistics which I have submitted do no more than support clinical observation of the change that has taken place in small-pox. They are a convenient method of setting forth broadly what every physician whose experience of the disease goes back far enough has with his own eyes seen of the contrast between past and present. And even so, some small reservation as to change of type has to be made in accepting the teaching of the statistics. Comparison of fatality rates at the present day with those of (say) only twenty or thirty years ago must be affected by the fact that systematic contact hunting brings out many very slight cases which but for the hunting would not be discovered at all. In these days such cases are notified and go to hospital, and increase the quantum of mild cases. Similarly, the contact hunting produces a large number of cases vaccinated just too late for complete protection, but greatly modified by the vaccination after exposure. This must now be a common experience where sporadic groups are being dealt with in towns and in factories and workshops. The result is also to increase the total of the mild cases in hospital, and so affect the fatality rates.

Two Types—Severe and Mild.

Concerning the sources of the two different types of small-pox occurring simultaneously in Britain in the epidemic years following the beginning of the twentieth century, it is necessary to look abroad for enlightenment. Fortunately, since I began to prepare these lectures, the Local Government Board has published an invaluable collection of statistics by Dr. Bruce Low relating to small-pox in many parts of the world, and so I am able to put aside in favour of his authentic official figures much material which I had been laboriously collecting.

European or African Type.

Dr. Bruce Low's report (p. 26) shows that in France after a period of comparative quiescence in 1897–99, small-pox became active in the years 1900–1903. In Paris in 1900–1 there were 4,505 cases, with 758 deaths, or 16.8 per cent. This happens to be exactly the London fatality rate of the same period, and in his report for 1902 to the London County Council Sir Shirley Murphy says (p. 28): "In summary it may be stated that during 1900 and 1901 small-pox had been frequently introduced into London from abroad, especially from Paris." Paris and Marseilles were the chief centres for spread of infection in France at this time, there having been in 1899–1900 more than 1,000 deaths in Marseilles. Spain also was heavily attacked by small-pox in 1900–1903. Madrid had 1,566 deaths in 1900–1, but the number of cases is not recorded. In Italy in the four years 1901–4 there were 60,532 cases of small-pox, with 14,951 deaths, or 24.7 per cent. These three countries, Spain, France, and Italy, with their extensive Mediterranean seaboard, are constantly under risk of infection from North Africa, where small-pox is very prevalent. There is every probability that the London small-pox of 1901–2 had the origin indicated by these facts, and the type of disease supports that view.

American Type.

In searching for a source of the much modified small-pox which prevailed in the provinces in the same period,

we have to look to the New World. In Trinidad in 1902–3 mild small-pox was imported from Venezuela, and in 5,256 reported cases there were only 28 deaths, or 0.53 per cent. For a time there was much difference of opinion as to the nature of this disease, but it appears ultimately to have been accepted as variolous.[4] In the United States small-pox of a very mild type has prevailed for many years. Returns are incomplete, as some States do not furnish reports, but the following comprise the records for the years with which we are dealing at the moment:

Year.	Cases.	Deaths.	Percentage.
1901	48,206	1 085	2.3
1902	55,857	2,111	3.7
1903	40,581	1,382	3.4

How this American type may have reached this country is illustrated in the following note addressed to the *Lancet* and BRITISH MEDICAL JOURNAL in 1901 by Dr. Boobbyer on an outbreak of small-pox at Mormon head quarters in Nottingham.

Small-pox has recently been introduced into the Mormon head quarters in this city, apparently by letters or other fomites from Salt Lake City. The first of our cases appears to have had a very mild attack and slight rash about February 1st; the second, also a very slight one, had a rash commencing about February 21st. The third and fourth were somewhat more severe than the preceding, but still very slight, and their rashes dated from about March 24th. The fifth, another extremely mild case, began to develop a rash on April 14th, at which date I first became aware of these facts, and at which also the entire household were removed to our isolation hospital. . . . I regret to say that the outbreak has been the means of communicating small-pox to Leicester, Loughborough, Derby, Sheffield, Liverpool, and probably some other places, though in single cases only, I believe, in each instance up to the present. The special cause of this latter general dissemination was in a small Mormon conference held in Nottingham on March 24th, at which date the rashes of the third and fourth local cases were developing.

The first case among the Mormon missionaries occurred about twelve days after receipt by them of a parcel from Salt Lake City. Mormon activities, it may be mentioned, are asserted also to have been responsible for New Zealand small-pox in 1913–14, a Mormon missionary being the reputed agent.

In 1901 Dr. Meredith Young had a very mild case in Stockport, infected from raw cotton exported from Texas, and, in reply to inquiry, the State medical officer explained that small-pox was quite prevalent, but so mild as to need no medical attention nor cessation of work.

In the United States this much modified small-pox has continued, and the fatality rates are even lower than those of 1901–3. In fact, from 1906 to 1915 (the latest year of Dr. Bruce Low's statistics), the rate has not in any year reached 1 per cent. of the cases, so that the Trinidad experience has been repeated. In the States the disease in this form is now looked on as endemic, occurring here and there like scarlet fever, and comparatively little heed is given to it.

In Canada also benign small-pox has been the type in recent years. In Ontario, in 1912–15, in 2,446 cases there were 11 deaths, or 0.45 per cent.—that is, only one death in 222 cases.[5]

New South Wales has shared in the mild American type of the disease. In 1913–14 there were 1,661 cases, with only two deaths. Infection is supposed to have been imported from Vancouver, where the same type prevailed.[6] Recent facts relating to small-pox in this country still show a mild type of disease.

Intercurrent Severity.

Intercurrently with this modified small-pox there have been in the United States local outbreaks of high severity. Pittsburg in 1912 had 33 deaths, or 27.3 per cent., in 121 cases, and other local rates of 25.6, 25.0, and 28.6 are mentioned. New York City in 1901–2 had 3,480 cases with 720 deaths, or 20.7 per cent. Similarly Ontario had, a few years before the low fatality rates above mentioned, a very different kind of small-pox. Dr. Hodgetts, secretary to the Provincial Board of Health, writing on mild small-pox (Toronto, 1905), gave the following figures for certain outbreaks in different parts of the province:

Year.	Cases.	Deaths.	Percentage.
1881	202	67	33.0
1885	146	16	10.9
1889	49	13	26.5
1899	30	9	30.0

In our own country in 1899–1900, just before the mild epidemic began, the city of Hull had a considerable epidemic of a severe type. The total cases were 943, and the deaths 163, or 17.3 per cent. With regard to possible origin, the medical officer writes in his report for 1899:

The great emigrant traffic through this city and port, especially from Southern Russia, may, in spite of the vigilance of the authority, have contributed a source of infection, for among the emigrants, persons had been frequently recognized as having recently had small-pox, and possibly the means of their disinfection had not been altogether efficient.

In 1903–4 Hull had a share in the then prevailing epidemic, and the type of the disease was that occurring generally throughout the provinces. The cases were 184, and the deaths 10, or 5.4 per cent.

Glasgow had a somewhat similar experience. An epidemic began there in April, 1900. The first case was that of a seaman on a vessel which arrived in Glasgow on March 18th from Bombay. The disease was confluent small-pox, and on discovery the symptoms indicated that his attack was well advanced towards the end of the second week. The effects of this source of infection did not extend beyond August, 1902. The fatality of the disease originating thus in 1901–2 was comparatively high—12.5 per cent. For more than a year from August, 1902, there was practically no indigenous small-pox in Glasgow. In September, 1903, however, a fresh epidemic began, the disease being introduced by navvies from the Talla Waterworks in Peeblesshire, and the fatality rate for 1903–4 was 7.6 per cent.

Bristol in 1908 had an introduction of small-pox of a severe type, from the Sea of Azov in Eastern Europe: the cases numbered 61, with 12 deaths. Again in 1915 a case introduced from Spain to the port of Bristol gave rise to an exceptionally severe outbreak of 32 cases, with 7 deaths. (Spain, as noted above, is apt to be infected from North Africa.)

Dr. Franklin Parsons[7] relates that:

In one town in Lancashire there were outbreaks from two sources concurrently; one could be traced to the cases imported from America, of a mild type, while another was traceable to the infection which had come across from Paris via London, and that was severe.

Mainly, however, small-pox in this country has been attenuated in type in quite recent years. Cardiff in 1916 had 51 cases with 3 deaths. In March and April, 1918, an outbreak amounting to 33 cases occurred in the East of London. Air raid shelters played a part in the spread of infection. The medical officer of the Local Government Board reports that "the type of the disease in this outbreak was very mild and no patient died except the presumed first one." Much vaccination and revaccination resulted in the locality.

The remarkable change in the type of small-pox from severe to mild, as recorded above, has occurred on the whole somewhat suddenly. It is true that the Metropolitan Asylums Board figures already quoted show some diminution between 1871–2 and 1884–5, but the drop from 15.9 in 1884–5 to 8.0 in 1892–3 is the first really striking change, and, except in London, there is a further appreciable fall in 1901–5.

Improved hospital accommodation and medical treatment and nursing and diagnosis cannot account for the change in this country, still less for the Trinidad, American, Canadian, and New South Wales experiences.

It is common knowledge that when small-pox is absent vaccination diminishes, and the occurrence of extraordinarily low fatality rates during and after a period of years in which vaccination has been less practised testifies further to the mildness of type of the existing disease.

Relation of Types.

The question naturally occurs whether these two different types of small-pox—the African and the American—are really the same disease or whether they have some relation to each other more or less analogous to that which exists between typhoid and paratyphoid. It is safe to say that vaccination supplies the answer. So far as I have seen, the great bulk of the evidence is to the effect that vaccination prevents the mild type just as it prevents the severe type. The relationship of vaccinia to the two types appears to be identical, and Jenner's conviction, which originally was much disputed, that variola and vaccinia are essentially the same disease, is now almost universally accepted. Evidence similar to that of the preventive power of vaccination against the mild and the severe infections has its parallel in evidence that the one infection prevents the other—the severe preventing the mild and vice versa. The conclusion, therefore, is that both infections are variolous. As Chapin said when mild small-pox was spreading in America:

> The crucial test of the identity of the two forms is, however, to be found in their immunity relation. Persons who have had small-pox or who have been successfully vaccinated are at least as immune to the mild as to the severe type. It is also found that persons who have had the mild type are equally immune to vaccination.[8]

When the mild disease first showed itself prominently it was naturally regarded as a "sport" of small-pox, the sport being the exceptional form. If, however, it should now gradually displace throughout the civilized world the severe form, then by and by the severe form would have to be regarded as the sport and the mild form as the normal—but that is a speculation which would carry us far into the future.

What are the conditions which cause small-pox to assume high virulence in one part of the world at one time and attenuation in another part of the world at another time, is a question of much epidemiological and practical interest, and is well worthy of study, say, by the Medical Research Committee. Comparison could be made of the conditions in Africa on the one hand, and in Venezuela and Trinidad on the other hand. Quite probably, high aggregation of cases in houses, or hospitals or towns, or such overcrowding and misery as existed in Paris at the time of the siege in 1870, may have favoured development of virulent or septic types, while opposite conditions may have the opposite tendency.

FATALITY OF NATURAL SMALL-POX.

The statistics which I have given include vaccinated and unvaccinated, so that the gross figures for individual towns with differing amounts of vaccination, if compared with each other, are somewhat fallacious. Taken broadly, however, and looking to the very considerable number of places included in the tables, they do not, I think, contain any important error, when applied to the country as a whole, in showing the fatality rates at successive periods. It is obvious, too, that the remarkably attenuated or American type of small-pox, which has so extensively replaced the severe or African type in recent years, is a reality, independent of statistics. And these lectures are addressed to a medical audience, which does not require to be convinced of the protective value of vaccination.

All the same, the epidemiological question of the fatality rate of natural small-pox at one period and another is of much interest. There being no vaccination in the eighteenth century, fatality rates,* so far as they exist, relate to natural small-pox only. Unfortunately, reliable data for that century are scanty, as the great majority of records are of deaths and not of cases. For the rest, it is necessary to eliminate the influence of vaccination since its introduction at the beginning of the nineteenth century, and to take note only of the fatality rates in the unvaccinated. But the age incidence of small-pox has an important influence on the fatality rate in any given epidemic. It is a very fatal disease in infancy, the fatality diminishes rapidly to a minimum in the third quinquennium of life—the age period 10 to 15 years being the most resistant to death by variola—then the rate increases during the remainder of life. The fatality rate, therefore, of natural small-pox, assuming the type of the disease to be fairly constant, would yet vary with the interval between epidemics. If the intervals were only about five years the rate would be high, because the cases would be mainly those of children under 5. If, on the other hand, an epidemic took place after an interval of, say, fifteen or twenty years, the fatality rate would be lowered by the fact that many of the cases would be at the most resistant period of life.

Notwithstanding these difficulties, it does seem worth while to utilize such data as exist in endeavouring to discover what has been the course of natural small-pox in respect of fatality.

The Eighteenth Century.

When small-pox inoculation first came into vogue about the year 1720, various statistics were published to show the difference between the fatality rate of natural small-pox and of inoculated small-pox. The principal authority was Dr. Jurin, secretary to the Royal Society, and the general statements made are to the effect that the rate of natural small-pox was about 16 or 17 per cent. Such rates are mentioned by various writers, but how far they follow Jurin's authority, and how far they had observed for themselves, it is difficult to say. I suspect the validity of Jurin's figures because of his curious assumption that all deaths under two years of age are to be put under such headings as overlaid, chrysoms and infants, convulsions, etc., but not small-pox, so that the cause of death is really unstated. We know that small-pox in pre-vaccination times was largely a disease of children, and that early childhood is a time of high fatality. With that reservation, and the further reservation as to the possibility of some chicken-pox being regarded as small-pox, there is little choice but to accept for what it is worth Jurin's figure of 16 or 17 per cent. as the fatality rate of the period between 1720 and 1730, to which the data refer.

The next available figures relate to the London Hospital for Small-pox and for Inoculation, and it is recorded that in the period 1746 to 1763 there were 6,456 cases and 1,634 deaths, a fatality rate of 25.3 per cent. In the last quarter of the eighteenth century—say 1775–99—it is stated that the rate in that institution was 32.5 per cent. It will be noted, therefore, that the rate was increasing three-quarters of a century before vaccination began.

The Nineteenth Century.

In 1836 to 1851, 2,654 unvaccinated cases in the same hospital had 996 deaths, or 37.5 per cent. In the epidemic year 1838, there were 387 unvaccinated cases with 155 deaths, or 40.1 per cent.* But Marson, who gives these figures, points out that these rates were somewhat higher than natural small-pox ought to yield, because severer cases were often sent to the hospital, and it was sometimes overcrowded.

1870–73.—The next figures are more certain, and relate to the epidemic of 1870–73. Dr. Seaton, in his report on that epidemic to the Local Government Board published in 1875, gives the fatality rate in the hospitals of the Metropolitan Asylums Board as 44.8 per cent.—say 45 per cent. This rate, like those already mentioned, is based on so large a number of cases as to make it fairly reliable, and it appears to indicate the maximum virulence in respect of epidemic fatality to which small-pox has reached in this country during the past 200 years. This view of the extraordinary virulence of the small-pox of 1870-73 does not depend merely on statistics. Dr. Munk and Mr. Marson, the medical officers to the Small-pox and Vaccination Hospital (which was still in use at this time after the institutions of the Metropolitan Asylums Board had been opened) refer to

> the severity of the disease, and especially to the number of cases of malignant small-pox, the proportion of which to other cases has been very largely in excess of anything within the previous experience of either of your medical officers.[9]

Dr. Seaton writes:

> The ratio in the hospitals of provincial and foreign towns generally has ranged from 40 to 50 per cent. among the unvaccinated and from 8 to 10 or 11 per cent. among the vaccinated—enormous rates, and attributed everywhere to the same cause—namely, the unusual proportion of malignant, black, and haemorrhagic cases. . . .

In hospitals at Berlin "the mortality among the unvaccinated was 81.25 per cent. and among the vaccinated

* There was no statistical confusion, so far as I have read, between natural and inoculated small-pox.

* Gregory (loc. cit.) gives 396 cases with 157 deaths in 1838.

14 per cent." In the hospital at Leipsig "the mortality among the unvaccinated was 71 per cent. and among the vaccinated (including doubtful cases) between 9 and 10 per cent."

The years 1873–84 in the metropolitan hospitals show a rather lower rate of 38.6 per cent., based on 2,169 cases and 838 deaths. (Gayton.)

1892–95.—Disregarding smaller or localized outbreaks, and turning to the next extensive epidemic in this country, that of the early nineties, the Royal Commission states that in London in 1892–93, among 409 unvaccinated cases there were 99 deaths, or 24.2 per cent. If "doubtful" cases are included the number is increased to 580, with 127 deaths, or 21.9 per cent. For the provinces I have taken out the figures for a large number of populous places with considerable prevalence of the disease in 1892–95, and find that in 2,550 unvaccinated cases there were 662 deaths, or 26.0 per cent. In various outbreaks the reports distinguish between the doubtful and the unvaccinated. The figure just given includes the doubtful. Of these there were 261 cases, with 42 deaths. If they be deducted the particulars are 2,289 cases, with 620 deaths, or 27.1 per cent. (See Table III.)

1901–5.—Coming now to the latest epidemic of any extent—1901–5—I find that in 1,305 unvaccinated cases in the provinces there were 247 deaths, or 18.9 per cent., and that if doubtfuls are deducted the cases are reduced to 1,088 with 198 deaths, or 18.2 per cent. (Table IV). In the Metropolitan Asylums Board's hospitals in 1901–2 the Continental or African type of small-pox caused a fatality rate of 33.1 per cent. in the unvaccinated—2,278 cases, and 753 deaths.

With regard to all these rates the reservations that require to be made have already been indicated. I would be glad to see a closer and fuller collection and analysis of all available data, which quite likely would make some alteration in details, but the figures at least give some support to the thesis just indicated, namely, that beginning with the year 1720, in the absence of comparable data for any preceding period, natural small-pox gradually became throughout the eighteenth century, and up to the epidemic of 1870–73, a more virulent and fatal disease, its maximum fatality being on a large basis of facts 45 per cent., and since then it has irregularly, yet persistently, diminished in fatality until we come to the epidemic of 1901–5 with its unvaccinated rate of 19.3 per cent.

Since 1901–5 the disease has been so little prevalent as to furnish no sufficient material for a further statement of reliable fatality rates, but such figures as exist, broadly looked at, continue to point in the same direction. Indeed, if the American type of disease be regarded as having

TABLE III.

Provincial Small-pox Fatality Rates in the Unvaccinated. (Including Doubtful Cases.)

Epidemic 1892–95. All ages.

Place.	Time.	Cases.	Deaths.
Dewsbury	1891-2	350	94
Warrington	1892-3	66	21
Leicester	1892-3	158	19
Liverpool	1892	24	9
Birmingham	1892-4	437	127
Aston Manor	1893	15	5
Brighouse	1892-3	36	11
Manchester	1892-4	155	34
Salford	1892-3	35	12
Halifax	1892-3	85	36
Leeds	1893	88	17
St. Albans	1893	10	4
Keighley	1893	41	6
Bradford	1893	229	61
Walsall	1893-4	239	70
Nottingham	1893	12	4
Hinckley	1891	19	3
Willenhall	1894	89	30
Bristol	1893-4	41	11
Oldham	1894	48	14
Derby	1895	27	8
Dublin	1891-5	201	60
		2,550	662 = 26.0%
Deduct doubtfuls...	—	161	42
	—	2,389	620 = 27.1%

* I argued similarly in *Vaccination Vindicated* in 1887, and pointed out that Dr. Munk had advanced the same view in 1881.

TABLE IV.

Provincial Small-pox Fatality Rates in the Unvaccinated. (Including Doubtful Cases.)

Epidemic 1901–5. All ages.

Place.	Time.	Cases.	Deaths.
Ossett Union	1902	133	37
Eccles	1902-3	3	2
Leeds	1902-5	185	18
Nottingham	1902-3	24	3
Newcastle	1903-5	138	14 (or 1902 2)
Stockport	1902-4	40	6
Bradford	1900-1	8	0
St. Helens	1903	4	0
County Palatine of Lancaster	1901	125	11
Cardiff	1901 and 1903	14	1
Swansea	1902	16	7
Halifax	1903-4	40	5
Wigan	1902-3	12	1
Salford	1903	31	3
Oldham	1902-3	140	11
Tynemouth	1902-3	44	2
Felling-on-Tyne ...	1903-4	41	8
Glasgow	1900-1	168	88
... ...	1903-4	155	37
Dublin	1903-4	67	21
		1,388	275 = 19.8%
Deduct doubtfuls...	—	217	49
		1,171	226 = 19.3%

replaced the small-pox of former days, the pestilence has been reduced to a mere shadow of its old self in respect of its ability to kill those whom it attacks. We must never forget, however, that intercurrently the African type of the disease appears every now and then, even in areas where the attenuated strain is so well established as to be considered endemic; and we dare not prophesy, but can only hope that the mild may ultimately displace the more virulent form of variola.

(*b*) INFECTIVITY.

Two factors go to make up the inherent capacity of a case of small-pox to convey infection to persons within the range of its influence. One is the character of the infecting organism which, reasoning by analogy, is assumed to be the *causa causans* of the disease. The other is the amount of the *materies morbi* in a given case. In a word, the two factors are quality and quantity.

Quality.—Unfortunately, bacteriology has not yet conclusively identified the organism. In this respect small-pox resembles measles, whooping-cough, and typhus, but differs from diphtheria, enteric fever, and tuberculosis. By observation, however, we know that those infections whose organism is undiscovered differ from each other in the certainty of their infecting power. I do not myself recollect ever seeing a sporadic case of measles. A single case means an outbreak. Whooping-cough is not so readily kept under observation by the health officer, but my impression is that it must be almost as certainly infectious as measles.* In respect of scarlet fever the position is very different. It often occurs sporadically, and a single case does not necessarily portend an epidemic. Either the disease may die out, or dropping cases may continue to occur for weeks or months before there is any epidemic. In diphtheria, whose organism has been studied, Dr. Davies of Bristol found that a marked increase of infectivity, under which sporadic cases were supplanted by epidemic prevalence, was accompanied by a definite change in the characters of the organism.[10]

Small-pox has more resemblance to scarlet fever than to measles in respect of the possibility of sporadic cases. In Kilmarnock in the eighteenth century (where it should be observed, however, that only deaths and not cases are recorded) there were, in inter-epidemic periods, occasional deaths which formed no part of an outbreak. In well-defined epidemics occurring every four or five years in a town with a probable population of over 4,000 the deaths ranged from 45 to 84, but between some of the epidemics there was an occasional sporadic death, and in one year a straggling prevalence over seven months yielded 8 deaths without attaining the dimensions of an epidemic. In Glasgow I have heard of a man with a fully developed and abundant eruption being discovered seated in a place

of public resort (George Square), and it was found that for about a week he had been freely exposing himself whilst in this condition. Yet not a single case of small-pox resulted from this missed case. That was a most exceptional occurrence, but seems to show an absence of infective quality in that particular case.* Such occurrences are more likely during the decline than during the rise of an epidemic. After the pre-epidemic period referred to in the next paragraph has passed, the small-pox of a rising epidemic seems more infectious, and with more carrying power, than that of an epidemic which has passed its meridian. Commonly, but by no means invariably, rise and decline are associated with respective periods of the year, prevalence rising from about December to May and falling from about June to October.

Small-pox epidemics sometimes begin very slowly, and sometimes break out very suddenly. In Kilmarnock in the eighteenth century there were instances of both sorts, but most of the outbreaks were pretty sudden. Deaths, not cases, of course are the criterion in prevaccination times. Dr. Seaton in 1868 called attention to this feature of slow onset of epidemics which had occurred in Cardiff and Sheffield in 1857. He regarded it as characteristic of all small-pox epidemics.

In London in 1901 the epidemic spread was very slow. At the beginning of the year there was one case in hospital, and the following were the monthly admissions:

January	2	July	14
February	1	August	82
March	0	September	167
April	0	October	272
May	1	November	438
June	5	December	761

Taking May as the onset, it was not till August that the dimensions of the outbreak became very noticeable.

The Gloucester epidemic of 1895–6 had a similar slow onset. Here are the figures:

Month of Outbreak.	Cases.	Month of Outbreak.	Cases.
1st	1	10th	604
2nd	—	11th	733
3rd	3	12th	283
4th	1	13th	122
5th	3	14th	15
6th	7	15th	—
7th	12	16th	—
8th	52	17th	—
9th	145	Total	1979

On the other hand, Edinburgh furnished an example of a small-pox outbreak which developed quickly. Owing to dispersion of navvies from Talla Waterworks (in the county of Peebles), where small-pox existed, four cases occurred in Edinburgh in December, 1903, and the monthly progress of the outbreak was as follows:

December, 1903	4	June	10
January, 1904	34	July	4
February	63	August	nil
March	32	September	nil
April	14	October	1
May	10		

Quantity.—Leaving now what, after all, is mainly conjecture as to the quality of the contagium vivum of small-pox, I turn to the much clearer question of the influence of quantity. It is an accepted fact that the eruptive material of small-pox, both cutaneous and buccal, is the infective agency, and there is no need to refer to the proof which inoculation affords of the truth of the proposition that small-pox vesicles and pustules and crusts are the *materies morbi* of the disease. So far, therefore, as quantity is concerned, the amount of the eruption, not merely on the skin, but also on the mouth and throat, in any given case is a measure of its inherent capacity for spreading infection, if opportunity be given by the infective material coming into due relationship to susceptible subjects. In the vaccinated, however, an originally copious eruption sometimes aborts remarkably, with corresponding effect on the amount of infective material.

It is not necessary to search through detailed reports of hospitals and of health officers to demonstrate that there has been in recent years a great diminution in the total average amount of eruption per case of natural small-pox. Broadly speaking, eruption and fatality rate go hand in hand. Confluent, discrete, and sparse eruption are accompanied by characteristic differences in case mortality, and this is so obvious that the proposition need not be laboured. It has been shown above that the fatality of small-pox is greatly reduced in recent years. Therefore the amount of eruption must have been greatly reduced, and in the same proportion the amount of infective material has been lessened. Small-pox, therefore, has been and is a much less infectious disease than it was half a century ago.

(c) PREVALENCE.

Fatality being reduced, and infectivity being reduced, it follows that, other things being equal, prevalence must also have diminished, and Dr. Bruce Low's report gives abundant evidence that this is the case.

In England and Wales the deaths have remarkably diminished. In five successive decades they have been:

1867–76	58,614
1877–86	18,026
1887–96	4,892
1897–1906	4,763
1907–16	139

The total notified cases in the years 1911–17 have been only:

	1911.	1912.	1913.	1914.	1915.	1916.	1917.
Totals notified	295	123	115	65	90	149	5
Of which in port towns	20	72	48	10	31	55	2
In port sanitary districts	30	12	25	7	12	14	1

These are very striking figures, showing that in the seven years small-pox has obtained almost no hold in the country, even when repeatedly introduced at seaports. In London the notifications since 1905 (after the epidemic had terminated) have only been in successive years to 1916 inclusive, 74, 31, 8, 4, 21, 7, 72, 6, 4, 21, 3, and 1. In Liverpool from 1904 to 1916 inclusive there have been only 144 cases with 4 deaths, and the last three years of this period have had only two cases, neither fatal. In Edinburgh and Glasgow in the five years 1912–16 inclusive there has not been a single notification, and in the twelve years 1905–16 the total cases in the two cities have been 37, with one death. In Ireland in the twelve years 1906–17 there has been one death.

On the Continent the Scandinavian countries have shared in Britain's remarkable freedom from small-pox, and so also has Holland. Sweden had only 18 deaths in the twenty-two years 1895–1916. Norway in the sixteen years 1899–1914 had 376 cases with 27 deaths, or 7.2 per cent. Denmark had 18 deaths in the twenty-five years 1892–1916. Its cases were about 300, so that the fatality rate was about 6 per cent. Holland had 124 deaths in the twenty years 1897–1916. The number of cases is not stated. Belgium has had much small-pox, but it has greatly diminished since an epidemic early in the present century, culminating in 1903, in which year there were 1,630 deaths in cases estimated at 10,000, which gives a fatality rate of over 16 per cent.—very similar to the rates in Paris and London in the same epidemic.

In France there has been no such complete disappearance of small-pox, though the deaths in the six years 1908–13 (the latest available data) were only 939. For Paris the figures are known up to 1916 inclusive, and in the four years 1913–16 the cases were 103 and the deaths five. In the Paris epidemic of 1900–1 it has already been noted that the fatality rate was the same as London's, 16.8 per cent. In subsequent years it has been much less, the cases having been 4,773 and the deaths 399, or 8.4 per cent. In Marseilles there has been very considerable prevalence, and in 1906–7 the fatality rate appears to have been very high, but there have been few cases from 1908 to 1915.

In Spain there has been much small-pox, but details are vitiated by small-pox and chicken-pox being classified together. Portugal also has had much small-pox. In Switzerland prevalence has diminished since 1905, though the fatality rate has been 13 per cent., the cases having been 345 and the deaths 45. In 1900–1 there were 567 cases and 67 deaths, or 11.8 per cent.

In Italy the disease has been very prevalent and the fatality high. In the twenty-nine years 1888–1916 there

* Dr. Killick Millard, in his Leicester report for 1902, mentions two or three cases of the sort.

were 320,161 cases and 81,289 deaths, or 25.3 per cent. In the last three years of this period, however (these being war years as it happens), prevalence was much less and the fatality rate low—2,126 cases and 57 deaths, or 2.6 per cent.

Small-pox in Germany will be considered in the next lecture.

In Austria up till 1900 there was heavy prevalence with fatality rates of 20 to 40 per cent. From 1901 to 1914 inclusive the disease was at a low ebb, with fatality rates much below the previous level, but in 1915 and 1916 there have been nearly 50,000 cases, though the deaths are not stated.

Hungary, like Austria, had much small-pox, but there has been very regular diminution from 15,470 deaths in 1887 to 81 deaths in 1912, the last year for which figures were obtained. It is probable that the disease has had some prevalence during the war, though Budapest is the only town of which that can be said with certainty.

In Russia there is a great deal of small-pox, with apparently a very high fatality rate, though there is probably some fallacy owing to incomplete returns of cases.

The above facts as to the continent of Europe, taken from Dr. Bruce Low's report, show that while in some of the countries there has been much less small-pox in recent years, in others there is still a high prevalence, and the constant intercourse between the United Kingdom and the Continent maintains a degree of risk which prevents any sense of security against successful invasion by the disease. Also, there is always a minor risk of small-pox by cotton from America, and by paper or other textile fabrics, as exemplified in Dr. Macewen's reports on outbreaks in cotton mills in Lancashire.

But, reverting to our own country, during the last half-century there has been, with the exception of the metropolitan epidemic of 1901–2, a great diminution in the fatality and the infectivity and the prevalence of small-pox. This diminution has progressed at an increasing rate of speed. In the latter part of the half-century, and in particular since the mild epidemic of 1901–5, the country has shown unparalleled freedom from the disease, not merely in respect of fatality, but also in respect of prevalence.

REFERENCES.

[1] A letter to Dr. Freind showing the Danger and Uncertainty of Inoculating the Small-pox, 1722. [2] Tweedie's *Practical Medicine*, vol. i, 1840. [3] *Public Health Administration in Glasgow*, p. 92 (Maclehose, Glasgow, 1905). [4] Seheult, *Proc. Roy. Soc. Med.*, 1908, p. 229. [5] Dr. Bruce Low's Report, p. 100 [6] Armstrong. Royal Society of Medicine, 1914. [7] *Proc. Roy. Soc. Med.*, vol. v, p. 43. [8] As quoted by Armstrong (loc. cit.) [9] Report of the Medical Officer of the Local Government Board, 1875, p. 53. [10] *Public Health*, vol. xix, Presidential Address by Dr. Davies.

FUNCTIONAL PARALYSIS OF THE DIAPHRAGM IN TWO CASES WITH ACCELERATION OF RESPIRATION.

BY

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(From the Physiological Laboratory, University of Glasgow.)

ATTENTION has been directed recently to the rapid, shallow type of breathing in late cases of gassing, and Haldane has associated the condition with an exaggeration of the Hering-Breuer reflex. The condition has also been observed in cases in which nervous symptoms have developed as the result of shell shock or other disturbance.

The observations made upon two cases at Oakbank Military Hospital seem to indicate that a paresis or paralysis of the diaphragm, the result of functional disturbance of the centre of the phrenic nerves, may account for the acceleration in breathing in some cases.

CASE I.

Pte. J. (nine months' service), admitted to hospital with a diagnosis of debility. He was a thin, undersized man, easily excited and nervous when spoken to. The respirations were rather rapid (28), the breath sounds somewhat feeble all over the chest, with a few moist râles at bases of lungs; he had neither cough nor sputum, the pulse rate was 80, and, beyond a localized basal bruit, there was no other abnormality of the heart. On the seventh day after admission he showed marked tremors of the hands and legs, specially severe in the right sartorius muscle. The knee-jerks were slightly exaggerated, with occasional slight ankle clonus in the right leg. Tactile and thermal sensation and eye reflexes were normal. On the eighth day it was noticed that the respirations were becoming gradually more rapid and fluctuating very much in rate (50 to 80). Ten days later the respirations were still very variable and usually extremely rapid. The breath sounds were much more harsh than formerly, but no râles were audible. The pulse was also very variable in rate (usually about 100), and he developed a transient albuminuria, which lasted three days. Observations on the thirty-fourth day show that the legs as a whole were now extremely tremulous, and the tremor of the right sartorius was merged in the more general one. The knee-jerks were much exaggerated, but no ankle clonus could be elicited, and the plantar reflexes were sluggish. No change in the condition of the chest was observed, but the respirations were more continuously rapid and less variable in rate (80 to 90). Careful charting of the rate showed that the increased rate was only present during the day, and practically disappeared during sleep.

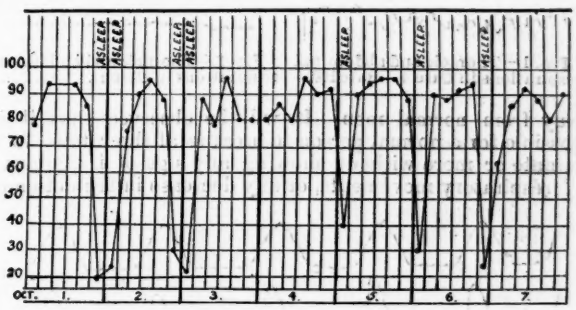


CHART I.—Respirations in Case I.

By the 106th day, although the patient was allowed up and could go about the ward quite freely, the high respiratory rate with a fall to normal during sleep still continued; the tremors of the hands and legs were still very marked, and the former condition of reflexes was maintained. As the patient showed no tendency to improve, he was transferred to a special hospital for neurasthenics, and unfortunately no further information has been obtained.

CASE II.

Pte. Y., admitted to hospital from France, where he had been for five weeks, gave a history of fits as an infant, intermittent otorrhoea since childhood, acute rheumatism and acute pneumonia six years ago during the same winter. He had been rejected for the army in 1915, owing, he says, to neurasthenia, but was accepted in 1917.

On admission he complained of difficulty in breathing, especially when lying down, discomfort in the cardiac region, and of occasional attacks of pain in the arms and legs. The condition was of gradual onset, and became noticeable about three weeks before admission—that is, about two weeks after going to France. He was described on that date as a very pale man of moderate physique with enlargement of the area of cardiac dullness—apex beat in fifth space in nipple line. No thrill. No bruit. Second sound slightly accentuated. Rhythm regular. Tachycardia, but not extreme—96. Respirations very laboured, numbered 50 per minute, and in consequence had great difficulty in expressing himself in speech. There was a slight prolongation of respiratory movements in a small area close to the edge of the sternum in the third right interspace, and the sounds in this area were rather moist, but no dullness on percussion could be appreciated. There was no sputum and no pyrexia. There were no tremors. The pupils were moderately dilated. Reflexes normal. Patient was a very heavy cigarette smoker, and his smoking was drastically curtailed on his first admission to hospital. During his residence little change was noticed in his condition; the rapid breathing persisted, and was present both while awake and asleep. The tachycardia still continued, and the following chart shows graphically the state of matters:

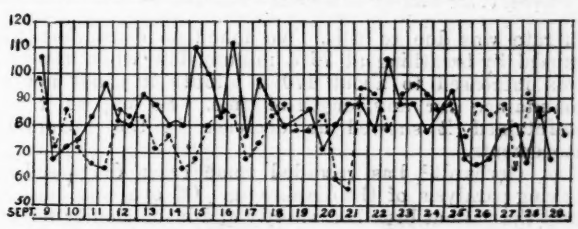


CHART II.—Respirations in Case II. Plain line = respirations. Dotted line = pulse.

He was transferred to a special hospital for neurasthenic cases, and has since been discharged from the army on account of "functional nerve disease." The respiratory movements are still rapid, but he is able to move about slowly.

At the request of Professor Noël Paton graphic records of the chest and abdominal movements were taken. This

was done by placing a small balloon on the chest and another on the abdomen, held in place by broad binders, and with each was connected a Marey's recording tambour. The tension was adjusted to give the best range of movement. The tracings thus obtained show extensive and rapid movements of the chest, but only a very slight movement, a mere tremor, of the abdomen, which subsequent investigation clearly demonstrated was propagated from the chest. As controls, tracings were taken in the same

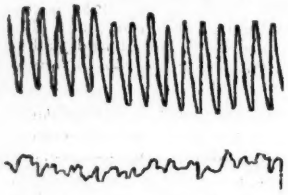


FIG. 1.—Thoracic and abdominal respirations in Case I. Rate 100.

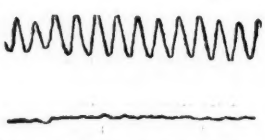


FIG. 2.—Thoracic and abdominal respirations in Case II. Rate 88.

way from normal men. It will be observed that it is possible for a normal person to breathe at the rate of 75 a minute or more without showing any sign of irregularity of respiratory movements, or any decrease in the action of

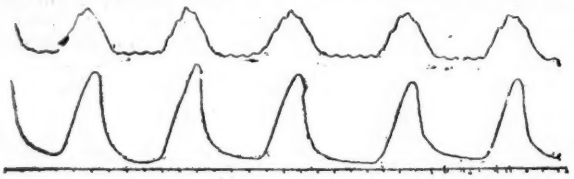
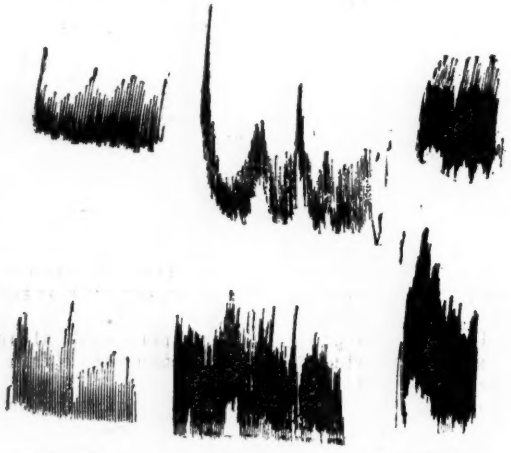


FIG. 3.—Thoracic and abdominal respirations from a normal man taken in the same way as Figs. 1 and 2. Rate 20.

the diaphragm as indicated by the amplitude of the movements of the abdomen. The tracings taken from the two patients, then, seem to indicate a failure in the action of the diaphragm, and it is probable that the acceleration



60 per min. 136 per min. 176 per min.

FIG. 4.—Thoracic and abdominal respirations from a normal man breathing 60, 136, and 176 times per minute, to show the absence of any decrease in the abdominal movements.

in rate was due to this. We found no discomfort was caused by breathing at 75 a minute, but when the rate was increased to about 170 a minute it could not be maintained for any length of time. So long as it was maintained it showed no decrease in the abdominal movements.

G. Gerhardt[1] has recorded some cases diagnosed as having paralysis of the diaphragm. Of one case he said that the patient breathed shortly and insufficiently for the needs of the voice, and that he could not breathe deeply. In some of his cases improvement or cure was said to have followed faradic or galvanic treatment of the phrenic nerves. Dr. Cowan,[2] reporting on a case diagnosed as peripheral neuritis in a fat, flabby woman, possibly an alcoholic subject, says:

In the first week of December the diaphragm was found to be paralysed. The costal arch was unduly widened, the epigastrium fell back with each respiration, and the hernia no longer descended into the sac; cough was feeble and imperfect, and largely replaced by choking fits. There was, however, no difficulty in breathing or cyanosis, and the respirations only numbered 26 per minute. The apex beat had swung outwards into the axilla, and the left chest was everywhere dull to percussion, and the respiratory murmur was extremely feeble, and accompanied by a few fine râles.

It would seem from this case that paralysis of the diaphragm is not necessarily accompanied by any marked increase in the rate of breathing.

Our thanks are due to Captain Torrance, R.A.M.C., for giving us permission to publish, and to Dr. A. G. Waddell for the clinical notes.

REFERENCES.

[1] *Berl. klin. Woch.*, 1893. [2] *Trans. Medico-Chir. Soc. Glasg.*, vol. viii, 1909.

A PNEUMOTHORAX PARADOX.

BY

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THERE is a fact very familiar to all who have experience in the treatment of phthisis by artificial pneumothorax which will probably appear very surprising to other clinicians. It would naturally be supposed that, when one lung is put quite out of action by the induction of pneumothorax, the patient would be very short of breath. Curiously enough the opposite is ordinarily the case. I was very much struck with this in a recent case of my own. The patient, a girl aged 16, had signs of extensive cavity in the left upper lobe, with abundant crepitations in the lower lobe. Some weeks after the induction of a left-sided pneumothorax she remarked to me quite spontaneously: "When I came to the hospital it was all I could do to get upstairs; now I can go up and down stairs quite easily."

The same thing is conspicuous in a patient whom I have now under treatment, by the kindness of Sir Thomas Oliver, in the Royal Infirmary, Newcastle-upon-Tyne. On admission she was able to talk but little on account of shortness of breath. Great improvement followed the induction of artificial pneumothorax on the left side. Some time after this she was allowed to go to a concert which was held at Christmas time in one of the wards. When I asked her if she had breath enough to laugh, she replied with a very pleasant exhibition of her capability in that way.

These are given merely as instances of what is an ordinary experience in successful cases. The explanation of the paradox is, no doubt, that the dyspnoea in phthisis is not mainly mechanical and due to the amount of lung tissue which is disabled by structural disease. This is the case to some extent of course. But mainly the dyspnoea is toxic. The same thing has been generally recognized by clinicians in pneumonia. A patch of consolidation in that disease may produce a degree of dyspnoea quite out of proportion to its extent. And conversely, when the crisis takes place the dyspnoea quickly abates, although physical signs may still show that a large part of the lung is not yet capable of functionating.

That an artificial pneumothorax does have the effect of reducing the output of toxins is proved by the fact that in a patient whose temperature has continued high in spite of prolonged rest in bed it may become normal within a few days of the introduction of air or gas into the pleura.

I have desired to give prominence to this effect of artificial pneumothorax in relieving shortness of breath because I apprehend that many practitioners, having patients with advanced phthisis afflicted with severe dyspnoea, are deterred from considering the induction of a pneumothorax by the fear lest the distress of the patient should be aggravated by it and the fatal termination precipitated. So far from this fear being well grounded, the truth is that provided the case is otherwise suitable for treatment by pneumothorax, that very dyspnoea, which was thought to be a contraindication, is really a condition which it is capable of relieving in a degree which cannot be expected from any other method. And it may be added that the more extensive the disease in the lung which we propose to compress with air in the pleura the less will be the strain of extra work thrown by the pneumothorax on the other lung. To immobilize

entirely a lung which is already almost incapable of function is physiologically a *vile damnum;* but from the point of view of restraining the output of toxins it may be an enormous gain.

A CASE OF ARTIFICIAL DOUBLE PNEUMOTHORAX.

BY

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TEMPORARY SURGEON LIEUTENANT R.N.

IN a recent edition of a popular textbook on physiology the following sentence appears in the chapter on the mechanism of breathing: "A perforation of the chest wall would mean that the lung on that side would no longer be of use; a similar injury on the other side (double pneumothorax) would cause death." This statement, along with the impression so many, as well as myself, have always entertained, that the so-called vacuum in the parietal "space" must be retained on at least one side of the thorax, seemed at variance with the continued viability of the patient in the following case.

From the use of artificial pneumothorax in the treatment of pulmonary tuberculosis it is well known that one lung may be very greatly collapsed with little or no embarrassment to respiration. Through a fluoroscope the lung, which is under great collapse, can be seen to undergo a limited respiratory movement, and even when there is a decided positive pressure of gas this lung does not entirely cease to function. I was, however, not a little surprised to find a patient breathing quite comfortably and moving about the grounds of the institution with no embarrassment, although, in the routine treatment of a case of pulmonary tuberculosis by artificial pneumothorax, I had produced a double pneumothorax of some considerable size, through a patency existing between the right and left pleural spaces.

Mr. C. was considered a suitable patient upon whom an artificial pneumothorax should be produced in order to rest the right lung, which was extensively involved and gradually becoming worse, whilst no definite active lesions were found in the left lung.

The first four introductions of nitrogen were of small amounts, averaging about 250 c.cm. each time; and these probably went into pockets between adhesions, judging from the oscillations and readings of the water manometer. But on the fifth introduction a definite pocket of gas between the base of the lung and the diaphragm was discernible through the fluoroscope.

Pressures (Water Manometer), and Accompanying Amounts of Gas Introduced.

Treatment.	Interval.	Gas.	Pressure at Start.	Pressure at Finish.
Initial ...	—	Oxygen 100 c.cm. Nitrogen 250 c.cm.	−8	+10
Second ...	1 day	N 300 c.cm.	−3	+10
Third ...	6 days	N 235 c.cm.	−20	+10
Fourth ...	4 ,,	N 260 c.cm.	−8	+20
Fifth ...	3 ,,	N 450 c.cm.	−9	−4
Sixth ...	4 ,,	N 425 c.cm.	−6	0
Seventh ...	8 ,,	N 700 c.cm.	−4	+6
Eighth ...	2 ,,	N 800 c.cm.	−4	+8
Ninth ...	8 ,,	N 1,000 c.cm.	+5	+12

After the eighth treatment the area above the diaphragm on the left side showed a slight transparency with the fluoroscope, but after the ninth treatment a very distinct pneumothorax was seen on both right and left sides, lifting the bases of both lungs away from the diaphragm. The highest part of the bases of the lungs was at the level of the fourth intercostal space in the mid-clavicular line. The patient said he was "a little short of breath," and felt that he "had gas on the stomach," but, as stated before, being an "up" patient, he continued to walk about the grounds with little discomfort.

It was obvious that the continuance of the artificial pneumothorax was not advisable; so the next day I withdrew the gas by reversing the method of its introduction.

Quantity of Gas Removed and Changes in Pressure.

Quantity of Gas Removed.	Pressure after Removal.
Initial pressure	+12
400 c.cm.	+ 6
600 c.cm.	+ 4
915 c.cm.	+ 1
1,175 c.cm.	+ 1
1,325 c.cm.	− 2

As soon as a negative pressure was obtained the operation was discontinued, but, as is shown in the *x*-ray plate, a considerable quantity of gas still remained on the right side. The gas was withdrawn at the same site as it was introduced in previous operations—namely, the eighth intercostal space in the anterior axillary line on the right side.

A study of the two *x*-ray plates showing the conditions before and after the withdrawal of the gas was instructive. The patency between the right and left pleural spaces was quite well defined at the time, when viewed through the fluoroscope. The extent of the involvement of the right lung was shown by the mottling of the organ. The adhesions in both lungs were well marked, and probably accounted for the marked depression of the diaphragm on both sides. Even after withdrawal of the gas the left lung showed a triangular transparent area indicating some retention.

Besides the physiological features mentioned and the anatomical peculiarity of a patency between the pleural spaces, which, of course, may have been the result of a tuberculous focus perforating the "partition" between the spaces, there is the further lesson conveyed of the indispensability of the fluoroscope, or *x* rays, in conjunction with the use of artificial pneumothorax, if the dangers of compressing a healthy lung at the same time as compressing the diseased one are to be avoided.

EPIDEMIC PNEUMONIC INFLUENZA AS SEEN IN MALAYA.

BY

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PNEUMONIC INFLUENZA broke out during the month of October, 1918, amongst the Tamil labour force on a rubber estate of which I was in medical charge, and was very fatal.

Lobar pneumonia is endemic in Malaya, and causes a fairly large proportion of the deaths among all classes of the community. Thus it may easily happen that the first few cases in an epidemic of this kind are regarded merely as an unusual incidence of ordinary lobar pneumonia. In this way valuable time may be lost ere precautions against the spread of the epidemic are taken.

While the disease produces a true pneumonia, there are many symptoms which serve to distinguish it from the ordinary lobar type of that disease.

The onset is usually heralded by a rise of temperature with hacking cough and a pain, which is almost invariably located by the patient in the front of the chest, and not at one side or another as in lobar pneumonia. The onset of this pain is preceded by sore throat and a nasal discharge; the latter persists during the illness. The coughing is painful, but the cough is not of the kind usually found in ordinary pneumonia. It is deep and full, and pain excited is much more generalized. The coughing occurs in long bouts, and in the intervals there is great exhaustion with the vocal breathing or groaning present in most grave illnesses. The facies is marked by an anxious look, which persists even after delirium has set in. The complexion is a yellowish-grey. The nostrils are dilated, and the reddened mucous membrane coated with encrusted haemorrhagic discharge is a notable feature in severe cases. The sputum is rusty and of the nummular form at first, but very speedily becomes more profuse and greenish-yellow, though remaining glutinous. Profuse epistaxis is common and of unfavourable import. Haematemesis and haemoptysis have both been seen in very severe cases, always as a terminal phenomenon.

The temperature exhibits a much greater diurnal variation than in lobar pneumonia, varying between 99° and 103° F., and usually touching both these limits in

each twenty-four hours. Delirium usually sets in much earlier than in lobar pneumonia, but it is very rarely violent or maniacal, even in alcoholics, but is of a muttering type, as in typhoid.

The pulse is by far the best guide as to progress in these cases. It fails in volume and increases in rate to a remarkable degree, almost as soon as the patient becomes ill. The rate rises to about 120, and in many cases that rate was maintained almost to the very end, with the pressure steadily falling. The respiratory rate is more variable, ranging from 40 to 60, or higher. The breathing differs from that in pneumonia. The breaths are deeper, and are not cut short in the way commonly seen in lobar pneumonia. The principal differences from ordinary pneumonia observed on auscultation are that practically no areas of complete absence of breath sounds are found, and the fact that all parts of both lungs are affected. Over the sternum and inner margins of the lungs loud bronchitic râles are heard, and further out, and towards both bases, coarse crepitations everywhere, with occasional patches of loud pleuritic rubbing. The sounds indicate a severe general bronchopneumonia with pleurisy. Percussion reveals areas of dullness in several parts of both lungs, or there may be a board-like dullness over a large area on both sides. The intercostal spaces are drawn in with inspiration. Deep and rapid breathing of the air-hunger type is frequently seen, and is of the gravest significance. The great quantity of sputum gives trouble very early in delirium, owing to the absence of efforts to clear the throat while coughing goes on. This leads to an accumulation of sputum in the throat which is very troublesome. The blood in these cases showed marked leucocytosis, especially of polymorphonuclear leucocytes.

Most of my patients were malarial subjects, and about 50 per cent. showed parasites in the blood, either active reproductive forms or crescents, but the course of the disease did not seem to be affected, the mortality being equal in those with parasites and those without.

Post mortem the lungs were either entirely or in great part hepatized. The pleura was covered with pus exudate, and there were many soft adhesions and free pus in the pleural cavity; the liver showed signs of early fatty degeneration, but the other viscera were not markedly affected. There did not appear to be any characteristic change in the spleen, though enlargement due to this specific disease might have been present and not distinguishable, owing to the malarial enlargement present.

The course of the disease was generally short. The mortality was very high, and no treatment appeared to be of the slightest avail.

I tried the injection of saline intravenously and intracellularly and by the rectum, and quinine by various routes. I also tried novarsenobenzol intravenously, and exhibited salicylates and expectorants, besides giving the usual stimulant dietary, but the course was unaffected. The condition seemed to be one of severe toxaemia from the very commencement.

As with plague, typhus, and many other of the gravest epidemic ailments, prophylaxis should be given the first and greatest attention.

THE OCCURRENCE OF MORGAN'S BACILLUS IN CHRONIC DISCHARGING WOUNDS.

BY

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THE following observations were made on wound infections occurring in a Poor Law infirmary. Here it was noticed that certain deep wounds, which were moderately clean on admission, gradually went from bad to worse in spite of careful treatment. These cases ultimately developed chronic discharging sinuses, the discharge having a peculiar odour very like that of a bacillary dysentery stool. Several of these patients were obviously suffering from a toxaemia; blood cultures performed were negative.

Cultures made from wound discharges of six of these cases revealed the presence in all of an organism identical with Morgan's No. 1 bacillus.[1] This organism was the predominant one in most instances, but other organisms, such as streptococcus and staphylococcus, were numerous. Autogenous vaccines of Morgan's bacillus, given in two of these cases, greatly improved the wound and general toxic condition of the patient.

Where did this infection with Morgan's bacillus occur? Was it the cause of this chronic wound infection?

The points to decide were: (1) What organisms were present in the wounds on admission to the hospital? (2) What organisms gained entrance to the wounds during residence in the hospital? (3) The source of any infection developing whilst in hospital.

Technique.

Immediately on admission to hospital swabbings were taken from wounds of twenty cases. Cultures were made aërobically in broth, on agar, blood agar and MacConkey's bile-salt-lactose-neutral-red-peptone-agar, and incubated at 37° C., and on gelatine plates at room temperature for seventy-two hours. Anaërobic cultures were made in glucose broth incubated at 37° C. for four days. At weekly intervals, for as many weeks as the patient was detained in hospital, the above procedure was repeated. The stools of these cases were examined on two consecutive days for organisms of the dysentery group.

Results Obtained.

From the swabs taken on admission various micro-organisms were found, often a mixed flora, chiefly *Streptococcus viridans* and *Staphylococcus aureus* and *albus*, in one case *B. pyocyaneus*, and in another *B. perfringens*. In none of the cases could Morgan's bacillus be isolated. Examination of pus from these wounds whilst in residence in hospital revealed the presence of Morgan's No. 1 bacillus in five out of the twenty cases—that is, 25 per cent. These organisms made their appearance in two weeks after admission in four of the cases, and in the third week in the remaining one. This was the only modification found of the admission flora except in one instance, where *Staphylococcus pyogenes aureus* was superimposed.

Morgan's bacillus soon became the predominant organism in the five infected cases. In this connexion two agar platings might be mentioned. One plate developed 205 Morgan's bacillus and 26 streptococcus colonies, the other plate 226 colonies of Morgan's bacillus and 51 of *Staphylococcus pyogenes albus*, after incubation for forty-eight hours at 37° C. The characters of this Morgan-like bacillus[1] were fairly constant in all the cases observed—namely, a short Gram-negative bacillus, non-motile or feebly motile, fermenting glucose with the production of acid and a little gas, although in some there was no gas formed; slight acid production in maltose. Lactose, saccharose, mannite, and dulcite were unchanged. Litmus milk was rendered slowly alkaline from the second day without previous acidity. Indol production was distinct in all except one case. This latter organism corresponded closely with Eyre's No. 9.[2]

As regards the source of infection with this bacillus, all the cases which developed this condition occurred in two wards widely separated and under different medical officers. The sterilized dressings used in the wards were examined on two occasions, with negative results. Stools of all cases proved to be negative to organisms of the dysentery group.

Agglutination reaction of the bacilli isolated with the patient's own serum yielded negative results, except in one case, where there was a positive reaction to a dilution of 1 in 40 in half an hour at 37° C.

Treatment.

Wounds infected with Morgan's No. 1 bacillus responded slowly, if at all, to ordinary surgical drainage and antiseptic dressing. In four cases treated by autogenous vaccine there was marked improvement of the local and general condition. The septic type of fever and odour began to disappear usually about three to four days after the first inoculation. Four to five inoculations were found to be sufficient. The dosage of vaccines employed was:

First dose	...	100 million	Morgan's No. 1	bacillus.
Second dose	...	200 ,,	,,	,,
Third dose	...	300 ,,	,,	,,
Fourth dose	...	400 ,,	,,	,,
Fifth dose	...	500 ,,	,,	,,
Sixth dose	...	600 ,,	,,	,,

In two cases there was a marked local and general reaction after the first inoculation, but when this passed

off there was a distinct improvement in the condition of the patient.

Conclusions.

That an infection by Morgan's No. 1 bacillus was superimposed on the wounds in this Poor Law hospital is evident from the absence of that organism in the twenty cases dealt with on admission, and its presence in five of them at varying periods after admission. The pathogenic action of this organism in wounds is evidenced by the toxic condition of the patient and the chronicity of the suppuration as compared with similar wounds from which this bacillus was not recovered; also from the fact that under treatment with an autogenous vaccine prepared from this virus the general and local conditions markedly improved. The odour perceptibly diminished from the wound in three days, and within ten days a dull and apathetic bed patient would be up and cheerily smoking, with his wound comparatively "clean."

The source of infection in the hospital is uncertain. The question of non-sterile dressings was considered but threw no light on the subject; bacteriological tests all proved negative. That the source was general is apparent from the fact that cases occurred in surgical wards widely separated, and attended by different medical officers and members of the staff. This point eliminates "carrier" infection. Owing to my leaving the institution I was prevented from concluding these investigations. But as the dysentery group of the bacilli, including Morgan's No. 1 bacillus, has been repeatedly found associated with cases of asylum or institutional dysentery in this country, the suggestion arises that a Poor Law infirmary is a likely habitat of these organisms, and the infection may have occurred from the dust of the place.

Although these notes are incomplete their publication may call forth similar observations from others. Should this be the case institutions of the kind should not be used as general hospitals for troops, at least until they have been thoroughly cleansed and disinfected throughout.

REFERENCES.

[1] H. D. Morgan, BRITISH MEDICAL JOURNAL, 1906, vol. i, p. 908; ibid., 1907, vol. ii, p. 16. [2] J. W. H. Eyre and E. P. Minett, BRITISH MEDICAL JOURNAL, 1909, vol. ii, p. 1227.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE NASAL PLUG AS A GUARD AGAINST INFLUENZA.

THE wearing of masks in railway carriages and crowded public rooms has been advocated as a means of protection against influenza. There is, however, a natural disinclination among most people to make themselves conspicuous by wearing masks, and rather than do this they prefer to take their risk of infection.

This objection can be met by the use of the nasal plug, which, when properly employed, is just as efficacious as the mask. All that is necessary is to carry about a piece of cotton-wool and, as occasion requires, pull from this two small plugs and insert one into each nostril.

It is important that these plugs should be made properly. Each should be big enough to fill the nostril completely, and the texture loose enough to allow of easy respiration through it. This is ensured by taking quite a small piece of cotton-wool and pulling it out so that it becomes really *fluffy* and about the size of the end of the thumb. One of these plugs is then lightly packed into each nostril so that it is just out of sight. While in place air should be inspired through the nostrils only, never through the mouth. Expiration may take place either through the nostrils or mouth. This procedure requires the minimum of attention and speech is not interfered with as this normally takes place only during expiration. If the plugs are made too thick, then, besides interfering with respiration, they render the speech stuffy as though one has a cold in the head.

They are best removed, on coming out into the fresh air, by blowing them into a handkerchief. They can then be taken home and burnt.

The use of an antiseptic wool such as cyanide is an extra precaution, but ordinary cotton-wool is more easily procurable and answers the main purpose which is mechanical.

It should be impressed upon the public that—

1. Infection takes place by the droplet method—small particles of mucus laden with microbes which may be coughed by an infected person to a distance of three or four feet.

2. It is when within this range that the danger of infection occurs.

3. This danger is increased when the atmosphere is confined, as the air becomes more heavily laden.

4. To prevent any of these droplets from being breathed in some form of screen or filter is necessary.

H. C. LUCEY, Captain R.A.M.C.,
Bacteriologist, No. 6 Stationary Hospital, B.E.F.

MUSK IN INFLUENZA.

THE present serious epidemic of influenza, with its heavy mortality both from the disease itself and from subsequent pneumonia, reminds one forcibly of the epidemic of 1890. It also recalls to my mind a method of treatment I adopted. This was the employment of musk as a powerful heart stimulant. I used it in the form of a pill, dose 1 grain, in combination with an equal quantity of quinine, given every four hours. I cannot tell whether it was *post hoc* or *propter hoc*, but shortly after the commencement of the treatment I noticed a distinct improvement in the course of the disease, especially in the mortality from pneumonia. The drug certainly did no harm, and it would probably be worth trying in the hope that some good may come from it. The drug is certainly costly; I am told it costs 6d. a grain at the present time.

Bournemouth. ARTHUR RANSOME, M.D., F.R.C.P.

LOSS OF HAIR DUE TO LIGHTNING.

DURING a thunderstorm in October, 1918, a house was struck by lightning and much damage done. Three children, a girl aged 9 years and two boys aged 7 and 5 years, were in the same bed on the first floor. According to the mother's statement, the children were all lying with their heads up at the same end of the bed, and all were asleep on their right side, as is their usual custom. The children were naturally frightened by the thunder and lightning, but did not suffer any harm. A fortnight afterwards the hair on the left side of their heads from the middle line downwards began to come out, and in a few days the scalp on the left side was quite denuded of hair. The right side of their heads was protected from the lightning by the pillow. At the present time (three months later) the hair is slowly growing again, and all the children are in good health. The lightning seems to have had a direct effect on the hair follicles like the *x* rays.

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Visiting Physician to the Manchester Children's Hospital and to the Salford Royal Hospital.

THE ASSOCIATION OF HERPES ZOSTER AND VARICELLA.

THE interesting article by Dr. R. Cranston Low (January 25th, p. 91) recalls a case that occurred in my practice some time ago.

Mrs. P., aged 40, was delivered of her fourth child in April, 1917, the delivery being normal. Three weeks afterwards severe pains set in in the region of the right hip, followed after a week's interval by a typical eruption of herpes zoster affecting the distribution of the twelfth dorsal and first lumbar nerves. A week afterwards several vesicles appeared on the left side of the neck. Phenacetin was administered, and afterwards morphine for the relief of the pain, which was excessive, but no other drugs were used. My friend Dr. W. H. Maidlow saw the case in

consultation with me, and we were both puzzled to account for the aberrant vesicles on the neck, but the following day the patient was covered with a rash indistinguishable from varicella, the spots being discrete, flattened, and a few umbilicated. The eruption followed the usual course of varicella, and disappeared before the original herpetic eruption.

The family consisted of husband and wife and three children (the eldest aged 6), besides the newly born infant. None of the family had previously had either herpes or varicella, and none contracted them on this occasion. The patient herself had no history of a previous attack. No precautions as to isolation were taken, and the infant remained with the mother. Varicella was somewhat prevalent in the neighbourhood, but the patient lived in an isolated dwelling, and in consequence of her confinement had not left the house for several weeks. The only child of school age did not contract varicella, and, unless one is to admit the possibility of infection having been conveyed through the agency of the doctor or district nurse at the time of the patient's delivery, it is difficult to explain the route by which it was conveyed.

Ilminster. H. DOWNES, M.B.

Reports of Societies.

PSYCHIC SECRETION.

AT the quarterly meeting of the Medico-Psychological Association of Great Britain and Ireland, held in the rooms of the Medical Society of London on February 20th, the President, Lieut.-Colonel JOHN KEAY, M.D., made sympathetic reference to the death of a past-president of the association, Dr. George Mould. The General Secretary, Dr. R. H. STEEN, read a letter from the sister society of Paris, expressing the desire for a bond of closer relationship with the British association in the same specialty. The letter, they said, was but a feeble testimony of their sincere regard, and of their keen admiration for Great Britain. The meeting approved the sending of a suitable letter in response, and the issue of an invitation to send representatives to the next annual meeting.

Lieut.-Colonel E. P. CATHCART, M.D., read a communication on psychic secretion. He said we lived in a world which influenced us more than we were conscious of, for we were apt to regard ourselves as a superior caste of animal. In this attitude of mind we recognized that lower animals were much subject to their environment—were, indeed, victims of it. But so, too, were human beings. The influencing and controlling of the secretions was only one of the simplest demonstrations of the effect of environment. The term "psychic secretion" as usually employed was a misnomer, as in essence it meant a reflex secretion in which the stimulus was not the commonplace one. He recounted Pavlov's experiments on the effects on the salivary flow in the dog of various outside stimuli, and the researches into the gastric secretion by means of a gastric fistula. One of the practical results was that the taking of food was, or should be, a serious function; unless it were eaten with interest and enjoyment the full value was not obtained from it. It was not the food alone which was of primary importance; the prandial ritual had assumed gradually a position of prominence and without it the meal did not seem normal. Mental strain or emotion played a large part in influencing secretion. Pavlov carried his researches into the realm of the central nervous system, and the method he named the formation of conditioned reflexes. He divided the salivary reflexes into two—(1) conditioned reflexes, (2) unconditioned reflexes. Pavlov said that the so-called psychic secretion—which resulted, perhaps, from a stimulus which in itself was indifferent—was a conditioned reflex, whereas the ordinary stimulation of the buccal cavity on the taking of food, the normal way in which saliva flowed, he called the unconditioned reflex. From a study of these two Pavlov had evolved a wonderful method of gaining information about our relationships with the outside world. In developing this relationship there were two fundamental factors. The first was what he called temporary association—that is, the bringing of external phenomena into relation with the reactions of the organism, this becoming more complex with the evolution of the higher centres. The second fundamental mechanism was the analyser, which was usually called in physiology the sense organ, such as the ear and eye.

How was an indifferent stimulus converted into an active one? Why was it that one man on reading in the newspaper that meat could be had without a coupon had an anticipatory flow of saliva, a vegetarian had no such emotion, his only concern being one of disgust that so much meat should be liberated? Pavlov showed that if a new indifferent stimulus were presented repeatedly along with one which was known to cause a secretion, then, in the end, the indifferent stimulus alone would cause a response. It meant that the reflex arc had taken on a new afferent neuron, but it had not done so unconditionally; in other words, there was not yet a beaten-down path—a right of way had not yet been established. For instance, if every time dried meat powder was put into a dog's mouth (to exclude the need for mastication) a bell were rung, or the skin of the animal were scratched, a time would come when the ringing of the bell or the scratching of the skin would of itself cause a flow of secretion; in other words, a conditioned reflex to a specific stimulus had been created. It had been found that similar reflexes could be generated by practically any phenomenon in the external world, provided the animal possessed a suitable analyser or receptor. Pavlov further showed that not only could one inhibit, either internally or externally, these reflexes, but one could even produce an inhibition of the inhibition, and so get back to the secretion again. The author went on to elaborate the theme, and to show how accurately responsive the organism was to carefully trained impulses.

The paper was discussed by several speakers, and the author replied.

THE PARIS THERAPEUTIC SOCIETY.

AT a meeting of the Société de Thérapeutique, Paris, held on December 11th, 1918, Dr. J. LAUMONIER reported a case of typhoid fever treated by colloidal iron; 5 c.cm. were injected intravenously every three days, each cubic centimetre containing 1 mg. of pure iron. Six injections were given in all. The treatment appeared to have a moderating effect upon the fever and to prevent the occurrence of anaemia and leucopenia, usually present in typhoid. Dr. L. RÉNON and Dr. R. MIGNOT read a note on the inefficacy of injections of saccharose in human and experimental tuberculosis. A solution containing 5 grams of saccharose and 2 cg. of novocain was injected subcutaneously or intramuscularly in cases of pulmonary or surgical tuberculosis without the slightest improvement being observed after thirty to forty days' treatment. Saccharose was also injected into guinea-pigs previously infected with tuberculosis, but the course of the disease was not affected, and one of them even died before the controls. In a paper on the treatment of influenza and infectious diseases in general by lymphotherapy and haematotherapy, Dr. S. ARTAULT DE VEVEY stated that lymphotherapy consisted in producing a bulla by any blistering agent and injecting 5 to 6 c.cm. of the serum intramuscularly into the patient's shoulder or buttock. As this process was not very rapid and as sometimes the patient's skin was refractory to blistering agents, in cases where a blister did not form at the end of ten hours, the speaker had been in the habit of removing 10 to 15 c.cm. of blood and reinjecting it at once. To prevent clotting, 2 to 3 c.cm. of a 10 per cent. solution of sodium citrate was first drawn into the syringe. This operation of haematotherapy was easy in the adult, whereas in the child lymphotherapy was the best method. Within a few hours of the injection of serum or blood the patient feels considerable relief; in the simple and abdominal forms the temperature becomes normal in ten to twelve hours, and in patients with nervous complications or bronchopneumonia in thirty-six to forty-eight hours. Dr. A. CHALLAMEL read a note on hypodermic injections of eucalyptus oil in the present epidemic of influenza. During the last few months he had been treating soldiers poisoned by mustard gas with hypodermic injections of eucalyptus oil (1 in 10) in doses of 2 c.cm., morning and evening. The treatment was started before any signs appeared in the lungs with the object of introducing an antiseptic into the finest ramifications of the bronchi. Eucalyptol was chosen owing to its proved value in the prophylaxis of contagious diseases. The success obtained in this class of case encouraged the speaker to adopt the same treatment in influenza, with equally satisfactory results.

Reviews.

WAR PENSIONS.

THE book *War Pensions, Past and Present*,[1] owes its origin to the fact that in 1917 its authors, Judge PARRY and Lieut.-General Sir A. E. CODRINGTON, were invited to become members of a Pensions Appeal Tribunal, an independent body formed to hear and determine certain specified appeals from decisions made by the officers of the Ministry of Pensions. The other members of the tribunal were Admiral Sir Wilmot Fawkes, G.C.B., K.C.V.O., Dr. Norman Moore, Mr. Bilton Pollard, F.R.C.S., and Mr. Albert Bellamy, C.B.E.

The earlier chapters are interesting but by no means pleasant reading. The authors seem to believe that until very modern times the "traditional" lines which are prefixed to the first chapter were but too true in their application to the peoples of this country:

> When troubles rise and war is nigh,
> God and the soldier is the cry;
> When war is o'er and trouble righted,
> God is forgotten and the soldier slighted.

It may be hoped—and perusal of the later chapters in this book certainly justifies the hope—that this state of things has ceased. The whole attitude of the Government towards the soldier has undergone a profound alteration during the course of the war, and the establishment of an Appeal Tribunal afforded a clear indication that Government, fully supported by the people, were prepared to do ample and speedy justice to the disabled soldier.

The authors certainly did not spare those who had the privilege of administering the Royal Patriotic Fund when they wrote:

> For over half a century it was the chief pension institution in the country, and its rulers fought hard against local administration, publicity of action, and nearly every first principle of pension management that we hope will prevail in the future.

This is a stern verdict, and the evidence for the prosecution is by no means set out at full length in the volume before us. No doubt the authors have satisfied themselves that it is correct by consulting the numerous documents to which they refer in footnotes. We confess, however, to having been unable to find in their pages any recorded justification for the statement that the Commissioners "fought hard against local administration and publicity of action." We believe, indeed, that if the gentlemen who, it may be supposed without fee or reward, undertook the difficult and arduous duty of administering the Royal Patriotic Fund, had been given the free hand which (as we shall presently show) was accorded to Judge Parry and his colleagues in relation to the question they had to decide, it might never have been possible to criticize the management of the fund.

The Tribunal of Appeal was appointed on July 25th, 1917, by the then Minister of Pensions (Mr. Barnes), who wrote:

> The question whether medical unfitness in the case of sailors or soldiers, or the deceased sailors' or soldiers' death in the case of widows, is attributable to, or aggravated by, military service, is determined in the first instance for me by my officers who have before them recommendations of boards of medical officers. Against these determination appeals are made to me. I have decided to refer these appeals to a Special Tribunal. The decision of this Tribunal will be final in the foregoing matters. No question with regard to the amount of award, whether the awards follow on the decisions of the Tribunal or have been made independently of the Tribunal, and no other matters are referred to them.

No rules were laid down for the guidance of the tribunal; but, as if the Minister were one of those who would "trim mercy's trembling balance with a tear," he subsequently expressed the opinion (in which the members of the tribunal always concurred) that where there was a real doubt the benefit should be given in favour of the man.

At a very early stage the tribunal decided that it would not consider itself bound by the rules of evidence. This was a necessity, because, in the nature of things, it was extremely difficult to ascertain the pre-enlistment medical history of the applicant for a pension. Some knowledge of that history is essential if a comparison is to be instituted between a man's physical condition before and after his military service. The same difficulty has presented itself to many persons who have been called upon to conduct inquiries during the present war. It was an unfortunate necessity for the reason that, if the rules of evidence are once abandoned, there is a danger that all kinds of evidence may be treated as of equal value. Evidence given in person and on oath is the best of its kind, and mere hearsay must be unreliable. By hearsay evidence we mean such things as generally follow the words "He told me . . ." "Hearsay" also includes (as a rule) a letter or other document written by someone who might come to court and be cross-examined, but cannot, or prefers to stay away.

Some of the decisions recorded in this book seem to show that the tribunal did in fact attach considerable weight to hearsay. "A letter from the mayor of a borough" as to a man's condition before he joined was received in one case. In another we read of a letter from "the vicar of his parish." No doubt such letters have some evidential value; but where there is any real evidence opposed to the statements contained in them they should (in general) be disregarded. But the Tribunal of Appeal was really established to do what the public wanted—to deal generously with claims for pensions. "Better let many improper claims for relief succeed than let one fail through lack of proper evidence." That was the motto which should have been emblazoned on the shield of this court; the public desired that it should be so.

The tribunal dealt with 927 cases; the majority involved only personal matters in which questions of general principle did not arise; but 21 are recorded, and of these 20 were allowed. It would be interesting to know how many of the whole 927 were allowed. If only one in every 21 was dismissed the tribunal clearly justified its existence. It held its last sitting on June 28th, 1918. The published decisions are interesting, and certainly evince a desire on the part of the tribunal to be freed as far as possible from technicality. The records of the tribunal will have some use in dealing with future cases; but, of course, in the nature of things the evidence could not be set forth in full. The principal value of the cases reported is that they show in very clear fashion how the case "for" and the case "against" is presented. The case "against" is usually founded entirely upon documents drawn up at some remote time and place by some person who cannot be summoned as a witness when the question "pension or no" has to be decided. Again, the actual decisions in these cases are of value. Although they turn on questions of fact, they are decisions in actual cases of frequent recurrence to which distinguished medical men contributed. Those who now discharge the duties so ably and sympathetically carried out by the distinguished members of this tribunal will derive real assistance from this record of their labours.

"GRAY'S ANATOMY."

Gray's Anatomy[2] has reached its twentieth edition and its sixty-first year of usefulness and popularity. The work has been entrusted once more to the skilful editorship of Professor ROBERT HOWDEN, who has again had the assistance of Dr. A. J. Jex-Blake and Mr. W. Fedde Fedden in the section devoted to applied anatomy. There are some sixty new illustrations, and the whole volume has been carefully revised, though we regret to find that the so-called "Basle" terminology is still used. It is true that where a B.N.A. name differs materially from an old one the latter is placed in brackets after the former, and both sets of names are indexed; but for reasons with which our readers are familiar we hope that in its twenty-first edition *Gray's Anatomy* will revert altogether to the familiar nomenclature of the first seventeen editions.

An interesting addition to the present volume is a short biography of Henry Gray, F.R.S., the author of the original work, whose brief but brilliant career is not recorded in the *Dictionary of National Biography*. Gray was born

[1] *War Pensions, Past and Present.* By His Honour Judge Edward Abbott Parry and Lieut.-General Sir Alfred Edward Codrington, K.C.V.O., C.B. London: Nisbet and Co., Limited. 1918. (Cr. 8vo, pp. 180. 5s. net.)

[2] *Anatomy: Descriptive and Applied.* By Henry Gray, F.R.S. F.R.C.S. Twentieth edition, edited by R. Howden, M.A., D.Sc., M.B. C.M. London: Longmans, Green, and Co. 1918. (Roy. 8vo, pp. xvi + 1324; 1168 figures. 37s. 6d. net.)

in 1827, and at the early age of 25 he was elected a Fellow of the Royal Society. He was in turn demonstrator of anatomy, curator of the museum, and lecturer on anatomy at St. George's Hospital. In 1861, when a candidate for the post of assistant surgeon, he was struck down by confluent small-pox, and died in his thirty-fifth year. The original engravings, which added so much to the early success of the book, were made from drawings by Gray's colleague at St. George's Hospital, Dr. H. Vandyke Carter. *Gray's Anatomy* has, indeed, always been noted for its clear illustrations no less than for the lucidity and accuracy of its text.

Of the present edition we can say, as we said of its predecessor, that it contains all the anatomical information which any but a professed anatomist will ever require, and the medical student can safely choose it for his study in preference to more voluminous textbooks. This is a tribute to the wise policy of successive editors, who have striven to keep the size of the book within moderate bounds.

NOTES ON BOOKS.

THE new edition of *Hadden's Pocket Vocabulary of Medical Terms*,[3] revised by Dr. PHILIP COWEN and Mr. DAVEY, furnishes the student with a list of the commoner medical terms in use, with their pronunciation and meaning. There is also a list of the chief Latin and Greek words used as sources by the inventors of new terms or equivalents. There is always room, in our opinion, for dictionaries of this sort, because their use encourages clearness of expression.

Mr. HENRY CARTER, in his book on *The Control of the Drink Trade*,[4] traces the history of the subject from the general election of 1908, when the public mind was strongly directed towards devising measures to ensure better conditions of life for workers and their families. He describes at length the various rules and regulations made during the war, and praises the arrangements for providing wholesome food at reasonable prices in the canteens.

The second edition of Dr. COBB'S book on *The Organs of Internal Secretion*[5] presents the same characters as the first, which was reviewed in the BRITISH MEDICAL JOURNAL of April 21st, 1917 (p. 515). It gives a clearly written and optimistic account of the subject, and will be useful to those undertaking the treatment of disease by hormone therapy.

The second edition of Dr. WHITING'S *Aids to Medical Diagnosis*[6] is a brave attempt to condense a vast amount of information into a small space. It is based to a large extent on the experience of a hospital out-patient department, and should be of service as a guide to the medical student during his hospital days. It is clearly written and well arranged.

To see the joke of the *Craft of thy Caduceus*[7] it is necessary to have spent, or perhaps it should be said wasted, some time on the literature of what is called occult science; those who have done so will enjoy the jest amazingly. The mass of printed matter on the occult is enormous and increases yearly; here all its tricks are neatly touched off, from the portentous air of muddled mystery down to the faint hint of mild impropriety. If ridicule could kill, this skit might put an end to a witches' sabbath. Though those occultists who have the disease in a confirmed form may be beyond rescue, some in whom the infection is still mild may be saved from becoming chronic sufferers. It is so like the twaddle seriously presented in solemn treatises that talk of new religions and higher thought.

[3] *Hadden's Pocket Vocabulary of Medical Terms (with their pronunciation).* By Henry Payne, M.D., M.R.C.S., L.S.A. Revised and enlarged by Philip Cowen, M.D.Durh., D.P H.Camb., and Herbert Davey. Fifth edition. London: Hadden, Best and Co. 1917. ($3\frac{1}{4} \times 5\frac{1}{2}$, pp. 264.)

[4] *The Control of the Drink Trade.* A Contribution to National Efficiency, 1915–1917. By Henry Carter. London: Longmans, Green, and Co. 1918. (Demy 8vo, pp. 323 7s. 6d net.)

[5] *The Organs of Internal Secretion: Their Diseases and Therapeutic Application.* A Book for General Practitioners. By Ivo Geikie Cobb, M.D., M.R.C.S. London: Baillière, Tindall, and Cox. 1918. (Cr. 8vo, pp. xiv+274. 7s. 6d. net.)

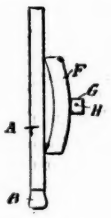
[6] *Aids to Medical Diagnosis.* By A. Whiting, M.D. Second edition. (Fcap. 8vo, pp. viii × 167; 15 figures. 3s. net.)

[7] 6, Walton Place, London, S.W.3. 5s. post free

MEDICAL AND SURGICAL APPLIANCES.

An Emergency Crutch.

ARTIFICIAL limbs are always removed on retiring to bed. Hence in case of sudden emergency at night, when there is no time to re-apply the artificial limb, the patient is practically helpless, for he cannot move about, even a short distance, without assistance. To remedy this inconvenience, Captain R. T. Kelly has recently patented a device which consists of two or more lengths or sections of metal tube, A, C, D, E, telescoping into each other to allow extension or contraction. The lower section is shod with a pad or ferrule of rubber, B, and the upper tube of the set has at the end a crutch head, F, formed of a solid piece of curved wood or metal, or other appropriate material, supplied with a pad to give support beneath the armpit. The sections can be extended instantly, so that the crutch can be brought into use at a moment's notice, and then locked by a self-acting catch. When not in use it takes up little room. The head-piece, F, has a spigot, G, and is locked in position by a pin, H, engaging a bayonet slot, I.



MOTOR NOTES FOR MEDICAL MEN.

BY H. MASSAC BUIST.

(*Continued from p. 283.*)

THE approach of the Budget sees the many motoring organizations bestirring themselves in the interests of the car user, notably in respect of the new transport scheme that threatens road interests in favour of camouflaged railway schemes; also in regard to the fuel problem. Nothing but debate—and little enough of that—has yet come of it all; but the matter will presently bulk more largely in the public view, even as will the post-war cars concerning which announcements are now being made in a much more generous quantity than actual examples are forthcoming.

ENTERPRISE OF OLD ESTABLISHED FIRMS.

There are a number of post-war light cars in prospect, but they are in general a class which cannot be recommended for the average doctor's work at this stage of development, in that, necessarily, many of the new makes should be in the hands of the public before sufficient can be known about them to that end; it may incidentally be mentioned that the Stellite, one of the very few light cars of absolutely novel design which was introduced before the war, and established itself before hostilities broke out, is probably to be marketed after the war by Messrs. Vickers's concern, the Electric and Ordnance Accessories Co., Birmingham, with three-speed gearbox; but it is not possible to announce complete details in this connexion at the time of going to press. It differs from the bulk of cycle and light car propositions in that the Stellite enterprise is run by a firm of ample resources, alike engineering and financial, as distinct from more or less being built by any local works, as are a great number of cycle and light cars. I am promised details within a fortnight.

Another well-established motor car engineering house, Clement Talbot of Kensington, is to supplement its series of 12, 25, and 36 h.p. chassis by a light car, which, however, will not be ready for delivery before the end of June. The incursion of this company into the light car field, however, is a sign of the times, and all the more interesting to medical men in that it reveals that such propositions are certainly not coming entirely from small or new concerns, but that, instead, some of the most responsible and oldest established houses in the industry are going to play a part in this notable development.

The Humber 1919 models consist of the range of cars which are already familiar to the public, including a 10 h.p. four-cylinder type of 65 mm. bore by 120 mm. piston

travel, which will sell as a "two-three seater" for £425, as a coupé for £460, and as a four-seater with longer wheel base for £560. A 14 h.p. model with 75 mm. cylinder bore and 140 mm. piston travel will be listed as a five-seater touring car at £600; all these types are fitted with separate unit dynamo lighting and electric starting gear as standard.

The new 12 h.p. Swift model is expected to be marketed some time this summer at about £300, with a four-cylinder block engine and offset crankshaft, the bore measurement of the cylinder being 69 mm. and the piston travel 130 mm. Special provision is made for the removal of the valves and the tappet spindles complete with their roller ended tappets. The oiling of the main bearings and connecting rod big ends is by forced lubrication. The gearbox gives three speeds forward and a reverse. The radiator takes a "Vee" form, and the bonnet tapers gradually to a scuttle dash, the over-all length of the complete car being 12 ft., and the wheel base 8 ft. 9 in. The vehicle complete scales somewhere about 17 cwt. Between now and July, when the new model is expected to issue in quantity, the 10 h.p. light car and the 15 h.p. five-seater types will be available; but once the 12 h.p. model comes through in quantity it will be the type made by the works on a scheme which has given excellent results, as is sufficiently manifest from the Rover policy in the pre-war period.

The Star Engineering Company of Wolverhampton will market 15.9 h.p. and 20.1 h.p. four-cylinder types, brought up to date, as notably by cutting down the weight in the reciprocating parts, and improving the balance of the engine. A special white metal alloy is employed in the crankshaft bearings of the big ends of the connecting rods.

SOME ESTABLISHED MAKES OF MIDDLE POWER.

The Daimler programme for 1919 consists of three types of chassis, those most likely to be of use for the doctor being a light six-cylinder 30 h.p. model and a six-cylinder 30 h.p. standard chassis; the remaining type is a larger six-cylinder "special." Wolseley will also be marketing three models, of which the most likely to be of service to the medical man is the 16/20 four-cylinder type that has been developed consistently, notably in the light of experience in war service. It will be issued complete with mechanical engine-starter, and so forth. It is understood that later in the season the firm will introduce a light car, but this in any case will not make its appearance until the autumn.

The Sunbeam programme embraces various models, the most interesting to the medical man being again a nominal 16 h.p. four-cylinder type, such as has given great satisfaction in transport service, for staff work and so on, during the war, the engine measurements being, as formerly, 80 mm. bore by 150 mm. piston travel. The suspension and frame details, as well as the equipment of a mechanical engine-starter, all mark improvements on what was available in this connexion before the war.

The most notable Vauxhall development is the 30/98 h.p. type. The mere indication of the range of power suggests that it is somewhat beyond the requirements of the average medical man. Indeed, it is rather a sporting car. But the four-cylinder 25 h.p. Vauxhall chassis is in the main akin to the latest patterns supplied to the army, and this is the car that has given perhaps the most satisfactory service of any for light transport work throughout the campaign. The differences in the Vauxhall peace model of 25 h.p. are that the springs are adapted to use on English roads. The frame is lower and the radiator is higher and narrower in design. During the course of the war the chassis has undergone constant revision, though there have been few radical alterations. The detail improvements include a spiral bevel drive, the substitution of ball valve oilers for grease-cups, the use of inclined steering pivots, the double master leaf in the springs, a new form of gear teeth and a spring drive between the engine and the gearbox. The smaller Vauxhall chassis will be marketed at £875; the complete equipment will include electric engine starting gear, so that the increase of the price in this case is only about 60 per cent. over the pre-war costs, despite wages and materials having increased over 100 per cent. It is said that the introduction of an eight-cylinder Vulcan model is in mind, but the 1919, 15.9 h.p. four-cylinder engine, with measurements of 80 mm. bore by 130 mm. piston travel, and four-speed gearbox and worm drive, is the variety most likely to appeal to the medical user.

The four-cylinder Hillman car has undergone various developments, the chassis being designed to accommodate a two-seater, a light four-seater, or a coupé body. Three speeds forward and reverse are furnished by the gearbox, the final transmission being by worm drive. The four-cylinder monobloc engine has a bore measurement of 65 mm. and a piston travel of 120 mm. One of the features of the construction is that each valve-cap covers two valves, and each pair of caps is held in position by two yokes, while the inlet and exhaust manifold is a combination design. The gear change is of the central type introduced by the Americans, the brake levers also being worked from the centre. The Scott dynamo is incorporated in the equipment, while the tubular oil supply gallery is designed to ensure adequate lubrication for the piston details when the vehicle is climbing steep gradients. A small six-cylinder Hillman engine has also been evolved.

FROM OVERSEAS.

Though Willys-Overland markets various models in America, one type only will be offered in this country in 1919, the body being considerably lower than in the case of most American cars, while the petrol tank is at the rear. The four-cylinder monobloc engine has a bore measurement of 85 mm. and a piston travel of 127 mm., the camshaft being driven by helical gears, and the dynamo by a side chain. The thermo-siphoning principle is employed for the cooling, and the equipment comprises a two unit six-volt electric engine starting and lighting system, with the usual dashboard instruments, as well as an electric horn and a complete range of tools. The price is not fixed yet. The Hupmobile is always a one-model programme, the chassis for 1919 being suitable for two-seater or four or five seater coachwork, the four-cylinder engine having a bore measurement of 83 mm. and a piston travel of 140 mm. High-pressure lubrication is employed, as well as a central change speed lever to control a gearbox giving three speeds forward and a reverse, the final drive in the back axle being by helical bevel. Electric engine-starting and lighting equipment are standard, and a spare rim is carried at the back of the vehicle. A special type of piston of hour-glass shape has been standardized with three rings, two being above and the other below the gudgeon pin. The frame is a straight-sided construction tapering outwardly in plan from the front dumb irons to the back cross member.

From France comes information that the Delage firm proposes to market a six-cylinder car with 80 mm. bore and 150 mm. piston travel, giving cubic contents of 4½ litres, this model being entirely new, with two carburettors and "Autovac" feed. Electric lighting and starting equipment are built into the chassis, and a novelty worthy of note is that brakes are supplied to all four wheels. The rear axle has spiral bevel gears. Lorraine-Dietrich are due to produce a four, a six, and a twelve cylinder model. La Buire, on the other hand, will go in for a one-model programme, a middle-sized vehicle of 70 mm. bore by 150 mm. piston travel with oscillating rear axle and cantilever springs; but deliveries are not promised for six months. Charron will continue to produce the small Charronette model with four-cylinder engine, 58 mm. bore by 100 mm. piston travel. Rolland-Pilain will market a 10 h.p. four-cylinder model of 70 mm. bore by 125 mm. piston travel, which, like the other French vehicles, will be manufactured complete with electric engine-starting and lighting set. Th. Schneider will make four models, the smallest with a four-cylinder engine with a bore measurement of 75 mm. and a piston travel of 130 mm.

The smallest of the post-war Panhard models has a nominal 10 h.p. four-cylinder engine, with a bore measurement of 70 mm. and a piston travel of 120 mm., produced for a chassis price of £500; while the smallest post-war Renault is a nominal 12 h.p. four-cylinder vehicle with a bore measurement of 80 mm. and a piston travel of 140 mm., to sell in France at a chassis price of £558, or complete with a touring body at £673. The smallest Berliet will be a nominal 15 h.p. four-cylinder machine, with a bore measurement of 90 mm. and a piston travel of 130 mm., to be sold in France complete with touring body, electric lighting and starting equipment, at approximately

£348. The small 8 h.p. Peugeot will be fitted with electric lighting and sold at £346 for the chassis and £461 for a touring body in France.

NOTABLE MASS ASSEMBLY PROPOSITION.

Undoubtedly the most notable novelty yet announced on the part of French makers, however, is the Citroen four-cylinder post-war vehicle, with a bore measurement of 65 mm. and a piston travel of 100 mm., giving an engine of 1327 c.cm. capacity, to sell, with standard bodies, at from £290 to £350. The scale of output is planned at 36,500 vehicles a year, which is the record for any European programme yet conceived. The proposition originates with the André Citroen Company, makers of the well known Citroen double helical, or herring-bone, type of bevel and crown wheel-drive gear. The car is expected to scale about 11 cwt. complete, while it is claimed that the petrol consumption will be about forty miles to the gallon. Accessibility has been had in mind, in that part of the low cost of production is to be achieved by the quickness with which the parts may be dismantled and assembled, so that the user is no less the gainer than the producer. Obviously, interchangeability is aimed at, since that is the only possible way of achieving what is styled mass production. The gearbox provides three speeds forward and a reverse, the maximum speed of the vehicle being estimated at forty miles an hour. Five detachable wheels, equipped with Michelin tyres, are being supplied as standard, the track of the car being about 8 in. narrower than the average British one. Perhaps the most novel mechanical feature is the suspension, details of which, however, are not yet released for publication. The body has pleasing outlines, and the chassis is intended to take a town coupé and touring types of coachwork. For the French market the American style of steering on the left side is to be furnished, while the vehicles for England will have the steering on the right. It does not follow that the price suggested is that at which the vehicles will be marketed in England; rather are the figures taken from retail sums aimed at in France. In this connexion it must be had in mind that foreign cars cannot yet be imported to this country, and doubtless a tariff of at least 33⅓ per cent. will be imposed when they are released, else there will be trouble with British labour.

It is to be regretted that the smallest four-cylinder car yet schemed by a big motor engineering house, the "Baby" Fiat, with a bore measurement of 55 mm. and a piston travel of 80 mm., giving 760 c.cm. engine volume, tested for two years past, will not be manufactured this year on account of factory conditions, and of the scale of the demand for the nominal 10 h.p. four-cylinder Fiat, with a bore measurement of 65 mm. and a piston travel of 110 mm., giving 1460 c.cm. engine volume, or approximately double the size of the "Baby" model. The 10 h.p. vehicle will be introduced at the Lyons Fair.

SOME PRACTICAL POINTS IN MEDICAL RECONSTRUCTION.*

BY N. BISHOP HARMAN, M.A., M.B., F.R.C.S.

THE idea of reconstruction implies that we are not content with things as they are, and I think there are few doctors who are content, or wholly content, with medical conditions of to-day. The ideals of medicine compel us to strive to attain such conditions as will ensure the best possible health for the community; and also such modes of work for us doctors as will call into play all our best energies, and satisfy our instinct for good.

For the purpose of this discussion let us consider clinical work only under four divisions: (1) The treatment of the poor; (2) of the employed; (3) of the middle classes; and (4) of the well-to-do. It will be obvious these divisions are arbitrary and not watertight compartments. The work of the doctor is but rarely confined to one of these divisions, but they will help us to arrive at practical conclusions.

CLINICAL SERVICES.

1. At the present time the medical provision for the poor is in the hands of the Poor Law authorities, and, so far as my experience goes, the work is well provided for and well done. The parish doctor is one of ourselves, engaged in the full work of his profession; the work he does under his appointment is the same as that which he does for his well-to-do patient. The Poor Law infirmaries, at any rate those I know in London, are first-rate institutions—well built, well equipped, and often with a first-rate staff, save only their numbers are so small that they are always engaged in a desperate endeavour to overtake their work.

But for all that, this work in the eyes of the people, and perhaps also in those of our profession, is the least esteemed of any work done by our profession. A stranger to our history might be amazed at this, especially when he learnt that all this good work was done under the aegis of bodies bearing the poetic title "the guardians of the poor." But the poor know history, or, rather, they bear in their memories a long tradition of injustice and of cruel tyranny; so the Poor Law and all that pertains to it is hated. The Poor Law will never live down its past. It is for this reason we doctors insist that medical relief must be completely divorced from all connexion with the Poor Law and married to the proper health services of the country. If the projected Ministry of Health be realized, and succeed only in this one thing, it will have done well.

2. Let us next pass to the second division, the medical treatment of employed persons. Within this are grouped all who come under the provisions of the National Insurance Act and their dependants. These persons are very numerous, their numbers rise as high as 80 per cent. of the community in some areas, and 75 per cent. of general practitioners take part in insurance practice. Yet there is no part of our work which doctors regard with more opposite feelings. Forgetting all the conflict of the initiation of this work, I will take into account only such expressions of opinion as I have gathered during work with the Central Medical War Committee. The divergence of statement has amazed me. In one large industrial city I found almost all the doctors on this service, and one of them said to me, "You could not dynamite us off it"; in another large township, mainly residential, I found only a small minority on the service, and the majority could not be persuaded to help in it even when high patriotism and war service were involved.

There must be some good reason for this divergence—something altogether beside prejudice. There undoubtedly is such a reason. Compare the pre-insurance practice of these typical regions. In the industrial city work was done through a system of clubs. The system, the arrangements, and the remuneration, were reflected in the character of the medical work, and this was such that no man with a proper pride in his profession could take pleasure in it. The insurance service as compared with the club system is a transfiguration, and is appreciated accordingly. In rural and residential areas, and towns not wholly industrial, the insurance service has brought no such improvement in the character of the medical work, nothing that could be appreciated as an advance on former practice; but it has changed the relations between doctor and patient, and introduced a third and somewhat bureaucratic party, and both these innovations are disliked. This divergence in view is bound to be reduced in time, but which way will it go? I think it will inevitably tend to the general view that the practice of the insurance service, as it now is, does not fulfil our medical standards. It certainly does not. I as a hospital surgeon can affirm that. In my out-patient clinic 60 per cent. of the patients are insured persons who attend for treatment that is essential to their industrial efficiency. Yet these persons pay for a medical benefit which makes no provision for these essential needs; they must still apply to a charity. A scheme of medical benefit which does not provide for specialist services and for institutional treatment is no scheme, it is poorer in status than the Poor Law provision which does all these things. Consider the thoughts of the insured person: his child attends the public elementary school, and as of right receives such specialist treatment as may be needed, whether for eyes, ears, throat, or teeth. But the man himself cannot get his eyes examined when they fail at his work; his sore throat will be treated, but he cannot get his Eustachian tubes catheterized; for these, and a host of other necessary services, he must pay himself or apply to a charity. From the doctor's point of view the case is worse. He loses his patient just when his interest in the case is developing. Unlike the parish doctor, or the doctor of the middle classes or of the well-to-do, he cannot follow up his patient and gain that advance in medical knowledge which comes to both general practitioner and consultant when they meet to consider a difficult case. Hence, if the insurance service is to be appreciated by us doctors, it must give such facilities for practice as will make the work good in our

*An address delivered to the medical profession of Maidstone, by invitation of the Maidstone Division of the British Medical Association, January 13th, 1919, at the West Kent Hospital.

eyes. These improvements become the more necessary if, as is contemplated by some, medical benefit is to be extended to the dependants of insured persons. If the service as it now exists be extended, criticism and hostility will increase; if a real service be provided, the reality of it will disarm criticism.

3. The medical provision for the middle classes is good, save in one respect. The relations of doctor and patient are all that could be desired; the complete freedom of both ensures that the best possible service shall be maintained. But there is one weak spot that seems likely to bulk more largely in the near future. Consider the average £500 a year household. In ordinary sickness treatment can be carried on in the home; but in serious illness, particularly when operation is involved, the difficulty of home treatment is great. It will be greater with the increasing cost of domestic service. Recourse must be had to the nursing home or private hospital. But the establishments which those of moderate means can enter are few, and the few are scarcely on a level in service, cleanliness, and comfort with the home of the patient. The truth is they cannot be. A clean comfortable nursing home with a good nursing service cannot be made to pay as an independent unit, let alone provide a living for the proprietor, within the charges the patient of moderate means can pay. How, then, is the need to be met? In my view it should be met by the voluntary hospitals. To each of these there should be an annexe for paying patients. The experienced managers of the greater hospital would, through a joint administration, nursing service, and house staff, secure economy and efficiency. Further, such hospital homes would secure greater safety for the patient. Under present conditions the doctor has to be his own house-physician, dresser, clinical clerk, clinical investigator, and operator whilst, for twenty-three out of the twenty-four hours he must leave his patient alone, with no trained deputy at hand who can act in an emergency; and the more sought after the doctor the greater is this difficulty. The anxiety on this score vanishes when the patient is in a home which can provide a full staff. The hospital annexe could do this. The idea is no novelty; it is in working order in many parts of the country, both in great and small hospitals. I would urge you to bring these facts to the notice of hospital boards.

4. I shall say nothing on the medical provision for the well-to-do. Their demands will always be met with the best supply that can be obtained within our knowledge. But in the conclusion of my address I want to say something to the doctors who are mainly occupied in this work.

SPECIAL PROBLEMS.

We may now consider some special problems that arise out of the unique conditions of to-day. First let me deal with a certain noisy demand for a State medical service—that is, a State clinical service manned by whole-time salaried officers.

A "State Service."

The advocacy of such a service is nothing new; as students we wrangled over its pros and cons in the hospital common room. Such a service can be produced in a few minutes on paper, and it will look as attractive and logical as any paper constitution. But would these airy creations work? From my judgement of human nature I am convinced they would not. I propose to give two reasons only: Consider the present distribution of medical personnel. There are with the forces some 6 million men, and in the home population some 33 million infants, women, old persons, Grade 3 men, and some other. The need for medical attendance must surely be far greater for the 33 million unassorted persons than for the 6 million picked men; no war risks could possibly be as great as for the multitude five times greater. Yet the medical personnel of the 6 million is nearly as numerous as for the 33! Indeed, I believe if we could count effectives only, and put all the military work done by home civilian doctors into the right side of the balance, the military medical personnel would outweigh the civilian. Why is this? The answer can be given in one word—*Fear*. Fear on the part of the responsible authorities, and a very natural fear; it would possess you and me if we were in their position. For fear of accident they are bound to maintain at all points of the military system such an equipment as will meet every possible contingency. Now if there were a whole-time salaried clinical service, just the same condition of fear would be operative. Indeed, I have seen this fear operating to-day. The department of State responsible for the rationing of medical personnel would be obsessed with the fear of making short provision. Some trivial incident, a queue outside a State doctor's surgery, or a long wait at a central State surgery, would fill the post-bag of the M.P., with the sequelae of questions in Parliament and a profusion of promises from a distraught Minister. The medical personnel of these islands would be doubled in ten years—and the cost——!

The people will not have State doctors, and if for any reason they are obliged to submit to their services they do not like them, and do not believe in them, just because they are officials. It may seem a foolish reason, but there it is; we do not like officials, whether they be flunkeys, overseers, or doctors. As a part-time official I have had not a few amusing experiences, and found myself viewed as an oracle to be obeyed and an official to be combated by one and the same person in the space of a few weeks. At hospital a mother has received with gratitude a warning on the state of her child's eyes and of the necessity for special educational treatment; and a few weeks later bridled with maternal fury at the same warning given by an official—the same, but unrecognized, hospital doctor. How illogical! Not at all. She chose the hospital doctor herself, and so she believed in him. If a whole-time State clinical service ever came it would mean a division of medicine into "established" and "free," and the advantages of status and credit would not be with the "established."

But, it may be objected, arguments, however good, will not prevent a State service coming when the politician drives. As to that I would bid you observe the straws of the recent election. Did the State service men make any show? If there be a party which might be debited with this heresy it is that of Labour, yet two Labour candidates making their appeal to constituents, amongst whom were many doctors, plainly gave their reasons against such a service. I refer to Dr. Peter Macdonald for the Scottish Universities and Mr. Sidney Webb for London University. These men are among the thinkers of their party, and it is thinking that will tell in reconstruction, and not prejudice.

There will undoubtedly be an increase in the provision of State services in this or that direction of medical treatment; but these special services will almost certainly be modelled upon the lines which are proving successful in the treatment of venereal diseases, and these developments will occur when gaps are found in existing medical provision which cannot otherwise be filled.

Demobilization.

In this connexion there is the problem of the settlement of the doctor now on military service. It is said that many of these favour a State service. I do not pretend to know their mind; I do not think any one knows it. If demobilization came *en masse* there would be unemployment, and therefore trouble, but it will be a gradual process. I cannot do better than refer you to the scheme for priority in demobilization[1] which has been evolved by the Central Medical War Committee and approved by the authorities. I believe that we shall find that with a regulated return home of men there will be a satisfactory resettlement in civilian work. Even those who have been away four years, whose practices have suffered most, will, as amongst the earliest to return, find a rapid re-establishment of their work. This belief is based upon our experience of the rapidity with which men already demobilized have regained their work. The reason lies in the present shortage of doctors, and the consequence that much work is left undone that is waiting to be done, and the people's idea of medical treatment is growing greater not smaller. Nevertheless it is our part to help the home-comers by giving up such war-time posts as we may hold. The settlement of men who have never been in practice is a separate problem.

Co-operation.

In all problems of reconstruction we individual doctors have our part to play; we must not wait and see what the State will do, but act for ourselves. One lesson has been forced on me in the work of the Central Medical War Committee: That the work of men in partnership is far safer than that of the single-handed man. I know the stock objection of the difficulty of two men hitting it off; but the partnerships that are desired should be multiple—three, four, five, or six men, either united by a working arrangement or through a closer financial agreement. In multiple partnerships the personal difficulty disappears; whilst the advantages of selection of work according to aptitude, area of working, and provision for leisure, study, holiday, or illness, make each partner a free man such as he can never be when single-handed. The strength that would come through such combination is manifest. There is yet another advantage to the general practitioner. Amongst laymen there is a growing feeling of hostility to the sale of practices, something like the hatred of the sale

[1] BRITISH MEDICAL JOURNAL SUPPLEMENT, January 11th, 1919.

of "livings"; men do not like to be bought or sold either in cures of souls or in medical practices. With a partnership the difficulty can never arise; men may come and men may go, but the firm goes on for ever! Partnerships, too, will solve the problem of the settlement of the unattached doctor on military service. There are some thousands of these young men who will come home some day; they have been receiving good pay, and should have saved money. Take them into partnership. It will be better to bring them in as colleagues than to find them as competitors on the other side of the road.

Post-Graduate Study.

This is a pressing problem. Thousands of doctors have gone into the army straight from graduation. Their general medical knowledge has been subservient in the army to their special work. How, then, will they be fit for general practice? Again, thousands of doctors from all parts of the world journeyed yearly to Berlin and Vienna for post-graduate study, but they will not go there now. Our own men and those men will all be wanting post-graduate study. Where will they get it? London is the obvious centre; nowhere else is there such wealth of clinical material. But at present there is no sufficient arrangement for the work. It is true special hospitals have done first-rate work in their specialities in the past; and a few general hospitals, notably the West London Hospital, have succeeded admirably in organizing post-graduate colleges even in the face of official cold-shouldering. But this work is as nothing to what is now waiting to be done, if only we have imagination enough to grasp the situation. Some would exploit the graduation medical schools for this work; but undergraduates and post-graduates will not mix in the same field. We ought to secure for post-graduate study the use of half a dozen of the splendid Poor Law infirmaries. These are filled with first-rate clinical material, both acute and chronic, and no use is made of this great field for study. Some may object that patients do not like students. My experience belies the objection. A patient does not object to a long and critical examination of his case in the presence of others, provided it be done with that consideration which is the characteristic of British doctors; rather he resents a look-and-carry-on attitude bred of overwork or indifference. Those who do clinical work in the presence of students know that the critical observation of the student is the best guarantee of continuous work of high quality. Medical post-graduate study is a national key industry, just as much as the making of magnetos or dyes. We have lost it in the past, now is the time to regain it.

CONCLUSION.

I have urged co-operation, the formation of local combines or partnerships, for the private security of doctors. Now I want to urge another form of co-operation for the security of the profession generally in dealing with these great problems. This can be done by each individual doctor joining the British Medical Association and bringing his weight to bear in the forces which that Association concentrates. The influence and weight of the Association amongst those who know and count in national affairs is unquestionable. I could cite a string of war-time responsibilities and conflicts which the Association has borne. The Central Medical War Committee is an example. A committee of the Association was made a statutory body by the insertion of a special clause in an Act of Parliament, and finally became the model for other professional committees.

Doctors in difficulties know the value of the Association: we find membership highest where difficulties are greatest. But I make my appeal to men in varieties of practice little touched by the problems we have discussed, to recognize their responsibility to their profession and particularly to those whose work is surrounded by difficulties—the weaker members of our body. I appeal to consultants, specialists, and doctors whose work lies almost wholly with the well-to-do, to stand in with their brethren now. Do not wait until trouble is at the door—a "scare" membership is an uninstructed membership, a difficulty if not a danger. I appeal also to doctors in the services, especially the home health services, "look unto the rock whence ye are hewn." Your sectional associations are good, but the great association of the profession is a necessity.

THE Census Bureau at Washington reports that the recent epidemic of influenza caused 111,588 deaths in the forty-six largest cities of the United States, and increased the general death-rate of these communities in 1918 to 19.6 per 1,000, the highest rate recorded since 1880, when the death-rate was 19.8 per 1,000.

MEDICAL RESEARCH IN INDIA.

THE Secretary of State for India in his speech on February 10th to the deputation of the British Medical Association, which, in addition to the representations it made with reference to pay, urged the need of further facilities for medical research in India, referred to the steps already taken, and mentioned in particular a conference of sanitary and bacteriological experts, held at Delhi last December, to consider the extension of such activities. Accounts of what the Government of India has done during the last ten years have been published from time to time in the JOURNAL, but in his opening speech to the conference at Delhi the Director-General told a story of the various schemes already on foot to improve health conditions in India, which when thus consecutively stated, shows how considerable are the efforts already made, and encourages belief in his expectation that the Government of India will be willing to find the funds for any sound schemes of development. A summary of what Surgeon-General Edwards had to say will be of general interest.

He pointed out that there were three main agencies—the Sanitary Department, the Bacteriological Department, and the Imperial Research Fund Association.

Sanitary Department.

The sanitary organization was on a purely provincial basis, and the Government of India exercised no direct control over provincial health matters. The Sanitary Commissioner with the Government of India was an advisory officer whose advice was at the disposal of provincial governments when they asked for it. The sanitary organization consisted of provincial sanitary cadres, with, at the head of each, a provincial Sanitary Commissioner assisted by two, three, four, or five Deputy Sanitary Commissioners in charge of the districts or circles into which the provinces are divided. Civil surgeons of districts were, in addition to their ordinary duties, advisers in sanitary matters. The large towns and municipalities had their own health officers locally employed and controlled. A scheme of health administration in the rural areas did not, strictly speaking, exist, but the provision of such an administration was under consideration.

The Sanitary Department was staffed by I.M.S. and non-I.M.S. officers. Of the latter some were recruited from England and some from India. All the Sanitary Commissionerships were reserved to the Indian Medical Service except the Sanitary Commissionership with the Government of India, which was ordinarily held by an officer of the Indian Medical Service. All the Deputy Sanitary Commissionerships—five in Bengal, five in Behar and Orissa, three in the United Provinces, four in the Punjab, two in Madras, three in Burma, and two in Bombay—were open to independent practitioners. In the North-West Frontier Province the administrative medical officer was the Sanitary Commissioner and the Deputy Sanitary Commissionership was reserved for an Indian Medical Service officer. Before the outbreak of war in 1914 the Deputy Sanitary Commissionerships were held by fifteen I.M.S. officers and ten non-I.M.S. officers. At the present time only one I.M.S. officer was a Deputy Sanitary Commissioner, the remaining fourteen being on military duty. There were, also, three health officers employed in Simla and Delhi; these posts are reserved for the Indian Medical Service, as are also the posts of Port Health Officer, Bombay and Aden. In addition, there were twenty specially recruited plague officers of the Indian Medical Service who were employed on plague duty or in travelling dispensaries. Health officers of the first and second class, of which there were some forty-five and ninety-four respectively in the provincial organizations, were not I.M.S. officers.

The Bacteriological Department.

The Bacteriological Department, a central organization directly under the Government of India in the Department of Education, consisted of thirty officers utilized to staff the Central Research Institute, the Pasteur Institute of India, the provincial laboratories, the provincial Pasteur Institutes, and for pure research work. The work done in these places fell into certain well-defined categories:

(1) Bacteriology and proto-zoology; (2) the preparation of vaccine and serums; (3) malariology, helminthology and entomology; (4) rabies work, and (5) water analysis and experimental work connected with pure water supplies.

The officers of the department conducted researches and investigated epidemics and other diseases, and it was hoped that a branch for epidemiology would shortly be added. The thirty officers of the department consisted of seven directors of institutes, and twenty-three other appointments, all open to non-service men. Six of them were at the time held by non-service officers; when war broke out thirteen were filling appointments as directors and assistant directors of the various laboratories, and seventeen were appointed for special research work.

The Indian Research Fund Association.

The Indian Research Fund Association, controlled by a governing body assisted by a scientific advisory board, made proposals for research, examined schemes received from outside, and exercised general administrative and financial control over inquiries carried out at its instigation. The income of the association was five lakhs a year (£33,333), out of which it engaged, financed, and equipped men for special research work, and also made grants to men in the bacteriological department engaged on research work; occasionally it gave grants to independent workers. It had no fixed body of officers for employment, but at the present time had working under its direction one I.M.S. officer and three non-I.M.S. officers. The number was small because so many men were doing work connected with the war.

Amalgamation.

Before reaching any conclusion regarding the amalgamation of the provincially organized sanitary department and the centrally organized bacteriological department, it was necessary to decide whether it was desirable and practicable to combine the provincial sanitary departments into one service, and to make one Imperial Service of Public Health. In the Montagu-Chelmsford report the subject "medical and sanitary" appeared on the list of provincial subjects, and also on the list of transferred subjects, as a transferred subject. Under that scheme sanitation, which would include public health, would be in charge of a minister chosen from the elected members of the provincial legislative council, who would be assisted by a standing committee elected by the legislative council from among its own members.

Future Developments.

Vast extension of research in public health services and institutions was necessary. In considering whether the provincial public health services should be combined into an imperial service the disadvantages of watertight compartments in limiting selection of officers for advancement to the particular occupants of each compartment were obvious. Assuming that at present the provincial organizations would be maintained, there would be in each province a Director of a central public health laboratory, a Sanitary Commissioner, and an administrative medical officer in charge of medical affairs. The relation between these three heads of departments, who should be in close touch with each other, ought to be defined. At present, so far as the activities of the Indian Research Fund Association were concerned, the arrangements and organization for research were separate from and independent of the sanitary and bacteriological departments, and the question arose whether this arrangement should continue. The Central Research Institute at Kasauli, at present part of the Bacteriological Department, required complete reconstruction; the buildings were inadequate, and it was doubtful whether the situation was suitable. It was a matter of urgency to establish an additional research institute in a central position, where clinical material for research was available. Delhi had been suggested as the site for a new up-to-date institute to serve as the head quarters of the research organization, but Dehra Dun and Nasik had also been mentioned. Many thought that the appointment of a Superintendent of Medical Research in addition to the Director of the Imperial Institute, was desirable; such an officer would have executive powers and be responsible to the advisory board. The Imperial Research Institute would remain under the central Government, but this would not prevent local governments from developing existing facilities for research and establishing research institutes of their own.

After a passing reference to the establishment of tropical schools of medicine, Surgeon-General Edwards concluded by saying that medical research must remain an imperial subject, and that the money required would, he felt certain, be gladly given by the Government of India to any reasonable scheme put forward.

Discussion.

The conference discussed the various matters raised.

It expressed the opinion that the Central Research Institute should be retained on its present site and a larger institute established within easy reach of clinical material, preferably at Delhi; it would serve as the head quarters of the Imperial Research Library and as a bureau of information. It was thought that the sanitary and bacteriological departments should be co-ordinated, but that, save in exceptional cases, the posts should not be interchangeable. Co-ordination should be effected through the Imperial Health Board, and the provincial health boards should be representative of remedial as well as of preventive medicine. The two branches should be dealt with in the Imperial Government by a single member of council. The Central Health Board should have a permanent nucleus at head quarters to advise regarding research, general policy, and appointments. Major appointments should be made by the Secretary of State on the advice of the Health Board, but recruitment for the service should be purely on grounds of efficiency, without race distinction; appointments should not be made for more than five years at a time, some increase of pay both for service and non-service members was recommended, especially in view of the fact that the general opinion was that private practice should not be permitted. Non-service officers appointed in future should have the benefit of a provident fund.

ROYAL MEDICAL BENEVOLENT FUND.

AT the meeting of the Committee held on February 11th, 1919, eighteen cases were considered, and £193 6s. voted to fifteen of the applicants. The following is a summary of some of the cases relieved:

Widow, aged 69, of M.R.C.S.Eng. who was a surgeon in the Royal Navy for twenty-one years, and then practised in Cornwall and died in November, 1918. She has had some temporary assistance from friends. Husband's income ceased at his death. Voted £18 in twelve instalments.

Widow, aged 44, of M.B.Lond. who died in 1907. Was left with two boys, now aged 12 and 14. Applicant acts as matron of a day and resident nursery, and receives £60 a year. Youngest boy lives with her at present, but this privilege is not likely to be continued. Eldest boy earns 9s. a week, but the mother has to supplement this by 11s. a week. Wants help for youngest boy's school fees. Was helped by the Fund in 1911 and 1912, £10 each time. Voted £10.

L.R.C.P. and S.Edin., aged 72, married. Has one daughter, aged 32, who helps at home. Has lost an annuity of £180 through the war. Earns £102 from practice, less £12 for drugs. Has received £39 from the National Relief Fund, and an annuity of £8. Rent £35 per annum. Voted £10.

Widow, aged 37, of L.R.C.P.Edin. who died in 1917. Applicant left with three children, aged now 3 to 11, the two eldest going to school. She has been living on the capital left by her husband, which is now nearly exhausted. Weekly home expenses, £3. Rent 11s. Voted £10.

M.R.C.S.Eng., aged 73, widower. Income, £30 from another charity, and £19 from relative. When acting as ship's surgeon was torpedoed in 1917, and as a result of exposure suffers from rheumatism and asthma. Relieved three times, £11. Voted £12 in twelve instalments.

Orphan, aged 13, of L.R.C.P.Edin. who died in 1917. Applicant was left with two elder brothers penniless, and friends looked after her. She is now receiving a good education and doing well, and help is asked for towards paying school fees. A grant of £25 was made last year to help her and her brother, who is now earning his living. Voted £15.

Daughter, aged 60, of M.D.Lond. who died in 1868. Applicant left without means, and has earned a living by acting as a nurse and housekeeper, but never been able to save. Health now very indifferent, and not able to work for any long period. Relieved five times, £24. Voted £12 in twelve instalments.

Daughter, aged 56, of M.R.C.S.Eng. who died in 1880. Applicant is a chronic invalid, and lives with a widowed sister. Her only income is a pension of £25. Relieved eight times, £96. Voted £12 in twelve instalments.

Subscriptions may be sent to the Acting Honorary Treasurer, Dr. Samuel West, at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild is now called upon, as a result of the war, to deal with many widows and children who, in happier times, would not have thought of asking for assistance. It is glad to receive secondhand clothing and household linen. The class of clothes most wanted is that suitable for boys and girls working in offices, for women, and for old men. The gifts should be sent to the secretary of the Guild, 43, Bolsover Street, W.1.

British Medical Journal.

SATURDAY, MARCH 15TH, 1919.

TUBERCULOSIS AMONG INDUSTRIAL WORKERS.

THE Medical Research Committee have just issued[1] a report upon the prevalence of tuberculosis among industrial workers, by Captain M. Greenwood of the Lister Institute and Dr. A. E. Tebb. The authors' attention was attracted to the subject by the increase of mortality from tuberculosis in women at ages 15 to 45 since the outbreak of war. They point out that Dr. Stevenson's surmise that the increase might be due to the influx of women into factories is borne out by the observation that if the occupational death-rates from tuberculosis of women employed in the German (pre-war) industries are applied to the female population, as approximately distributed into industrial groups on the basis of the Board of Trade's estimates, the calculated deaths agree well with the observed deaths in 1914 and 1916 in England and Wales. The observed deaths were 22,214 and 24,131, the calculated 22,446 and 23,986. Captain Greenwood and Dr. Tebb accordingly decided, with the sanction of the Ministry of Munitions, to make a preliminary survey of the available statistics and to carry out a field inquiry in Birmingham.

In the first part of the report the general question of the mortality from tuberculosis of industrially employed males is discussed. The authors point out that to measure the direct influence of employment itself is a most difficult task, since the actual death-rate is the product of the combined action of factory conditions, housing conditions, and the inherent resisting powers of those employed, while the available data are open to many criticisms, some of which they specify.

They endeavour to allow for the factors of physique and social status by assuming that the death-rate from all causes other than tuberculosis is some measure of the combined action of both factors; and then, with the help of a regression equation correlating the death-rate from all other causes with that from tuberculosis, they note the occupational groups which show a mortality from tuberculosis at least 25 per cent. in excess of that predicted from the other death-rate. The authors devote a good deal of criticism to this device, which had previously been adopted in principle in attempts to isolate the environmental factor of infant mortality. They point out that the inclusion of industries to which specific risk of any disease (for example, lead poisoning or dust phthisis) attaches would render it nugatory, and they have been guided by the advice of Dr. E. L. Collis in excluding particular occupational groups. They note, however, that the possibility that the tuberculosis death-rate is more highly correlated than is the death-rate from other causes with the combined workings of physical selection and extra-occupational environment cannot be overlooked, so that the method remains suspect.

[1] An Inquiry into the Prevalence and Etiology of Tuberculosis among Industrial Workers, with special reference to Female Munition Workers. By M. Greenwood and A. E. Tebb. Medical Research Committee, Special Report Series No. 22. London: H.M. Stationery Office. 1919. Price 1s. 6d.

Since, however, nothing better could be done with the existing data, they have utilized the method in sorting out occupations. Its application to the data of three decennial reports in the English experience and to a recent tabulation of Dutch industrial mortalities showed that in all statistics studied, four occupations—bookbinding, printing, tailoring, and cabinetmaking—returned excessive mortality from tuberculosis; while four other groups of industrially employed males—hatters, hosiery makers, shoemakers, and hairdressers—had excessive mortality in each of the English collections of data (but not in the Dutch statistics). When the process was applied not to standardized mortality figures but to the death-rates in separate age groups, bookbinders and printers were found to have excessive mortality in each age group studied; tailors had no excessive mortality from tuberculosis at ages 55 to 65; cabinetmakers showed the excess only at ages 35 to 45. The authors, very tentatively, suggest that the factory conditions of printers, bookbinders, and tailors may be specially unfavourable, since, notwithstanding the selective effect of a heavy death-rate from tuberculosis in the youngest age group, mortality is still excessive between 35 and 45. But they point out the precarious nature of this argument owing to the fact that, even when the mortality at age 25 to 35 in one decennium is brought into relation with that at age 35 to 45 in the following decennium (a method they have adopted in one case), migration from occupation to occupation prevents the population of, say, tailors aged 35 to 45 in one decennium from being merely the survivors of tailors ten years younger at the previous census.

In the second part, the morbidity and mortality of industrially employed women are examined. The authors have collected the less unreliable figures—in particular they give a useful table compiled from the elaborate German analysis of the Leipzig insurance data, which at least proves that the morbidity of employed women is higher than it should be, since, for instance, the annual case rate of tuberculosis for women employed as bookbinders is 9.5 per 1,000, while for domestic servants it is only 2.2. But the reader will share the authors' disappointment with the extremely meagre statistical data as yet available.

In the third part of the report, Drs. Greenwood and Tebb consider the regional distribution of tuberculosis among women before the war, and show that the correlation between the death-rate from tuberculosis and the death-rate from other causes decreases with urbanization, being greatest for rural districts and least for county and metropolitan boroughs; a difference similar in form but showing throughout lower absolute correlations was observed for males. The lowest correlation of all was found for thirty-three towns, centres of great industries. The authors think that this somewhat strengthens the argument for a special industrial factor in the genesis of tuberculosis.

In the fourth part the war-time statistics of England and Wales are examined. As death-rates are not available, but only deaths, the reliability of the ratio of deaths from tuberculosis to all deaths or to all other deaths (the proportionate mortality) as an index of tuberculosis prevalence had to be tested. The authors show that the proportionate mortality is sufficiently highly correlated with the death-rate from tuberculosis for the former to be a fair criterion of the latter when an average result is in question, but that the stringency of the correlation is not sufficient to make it a satisfactory measure in individual cases.

They tabulate the ratios of tuberculosis mortality to mortality from other causes (women aged 15 to 45) in the principal administrative units of England and Wales from 1913–16; it appears that the ratio has increased in a majority of areas and there is a faint indication that the increase has been more general in the industrial areas. They also provide a series of graphs showing the proportionate mortality of women from phthisis at each age group in a series of representative groups of towns, from which it appears that in London and the great industrial towns the proportionate mortality at ages 15 to 20 has been increasing through the war. The *prima facie* suggestion is that war industry has drawn upon the weaklings of the rural areas, but the authors think some further statistical confirmation of this is needed.

In the fifth part a careful account of Dr. Tebb's field inquiries in Birmingham is given. The outcome was that, although no trade habit directly conducive to the spread of tuberculosis could be detected in the munitions factories, with one doubtful exception, the hygienic conditions, particularly with respect to ventilation, in factories of older type and construction were found to be thoroughly unsatisfactory, and the incidence of tuberculosis upon the employees in such factories, so far as could be determined in a sampling inquiry, was especially heavy.

The general conclusions reached by Captain Greenwood and Dr. Tebb were: (1) That the incidence of pulmonary tuberculosis upon the employees in particular trades was higher than could readily be accounted for by the hypothesis that these trades attracted persons of inferior physique and low general resistance to disease-producing causes. (2) That the incidence upon inhabitants of towns was similarly greater than could be accounted for by the general lowering of health associated with the bad home environment of the urban poor, and also pointed to an industrial factor. (3) That the proportionate mortality in women at ages 15 to 45 has increased in a majority of registration districts since the outbreak of war. (4) That the proportionate mortality in girls 15 to 20 has increased in the great industrial towns. (5) That a field inquiry in Birmingham has revealed a relatively greater incidence of phthisis upon those employed in hygienically unsuitable factories. As we have indicated, Captain Greenwood and Dr. Tebb import a good deal of caution into their deductions from the material, and are clearly of opinion that much more remains to be done before the conclusions suggested can be deemed established facts of science. None the less, their report is of value, and will be of service to others desirous of tackling an important and difficult problem.

TREATMENT OF WAR WOUNDS BY GERMAN SURGEONS.

A RECENT issue of the "Medical Supplement"[1] gave a well arranged and painstaking account of the treatment of wounds by German military surgeons from August, 1914, to the early months of 1918, culled from the writings and reports of no fewer than forty-two surgical authors. Some comments thereon may be of interest.

German surgeons started the treatment of war wounds with fixed ideas and definite plans formed on the teaching of surgeons of the previous generation (Langenbeck, Bergmann and Esmarch), on the experience of the aseptic system in civil practice, and on the expectant methods of the South African war. Their awakening to the fact of invariable and inevitable suppuration was rude and early. Marwedel at Aachen found the total mortality rush up from 1.2 per cent. on August 14th to 16.9 per cent. on October 14th, and primarily infected wounds rose from 29.1 per cent. on August 14th to 62.2 per cent. on October 14th. In that period the war of movement had given place to stationary warfare, and the number of shell wounds increased; there were difficulties and delays in transport, and increasingly bad weather. Enderlen at Metz and at Peronne met with extensive suppuration, destruction of tissues, and gas gangrene very early, and apparently made up his mind that more radical methods than those initially practised were necessary. He says that he began to operate for wounds of the intestine in August, 1914, and found that success depended upon operation within ten hours; 67 recoveries out of 154 cases, many with multiple perforations (within what period is not stated), made a good record. In October, 1914, he began more thorough treatment of head wounds by raising depressed fragments, removing clots, and drainage.

The active treatment of wounds by incision, excision, and exploration, followed by primary or secondary suture, does not seem to have become general in the German army until after Garré had advocated it at the Brussels meeting in 1915. No records, however, were published until 1917, when Hufschmid, Preusse, and Eckert narrated their experiences with 207 cases of wounds of soft parts dealt with by excision and primary suture. There were 11 total failures, 10 in wounds involving muscle, of which class there were 78 cases; all the 78 scalp wounds, including 8 trephinings with uninjured dura mater, and all but one of the 51 wounds of skin and subcutaneous tissue healed by primary union. Fründ of Bonn stated in October, 1917, that he was doing primary suture of wounds complicated by comminuted fracture of long bones. In a series of 280 cases admitted to a field hospital in a period of six weeks, exclusive of small superficial wounds, 184 were treated by primary suture, with 14 failures; 35 of these were wounds complicated by injury to long bones, and of these 8 were failures; all four of the femur cases and one-third of the humerus cases were unsuccessful. This surgeon's final method of dealing with the wound was to excise the skin margins, remove piecemeal the lacerated deep structures and irrigate with chlorine water rendered alkaline by addition of soda. This solution demarcated dying from living tissue; at first all the tissues were stained a dirty brown, then vascularized tissue, especially muscle, assumed a bright red colour and the devitalized tissue remained brown. It was not a powerful antiseptic, but it promoted hyperaemia and thus aided phagocytosis. In comminuted fractures, fragments which were loose or not firmly attached were removed, the wound washed with alkaline chlorine water, and sutured without drainage.

Gas gangrene afforded the Germans plenty of clinical worries and was the theme of papers and lectures innumerable. The features of the disease were not in any sense different from those experienced by our armies, but Fründ and Payr tried to make distinction between epifascial gangrene and a deep subfascial muscular form; the latter they thought attacked lacerated muscles and spread more rapidly in the distal portion of the muscle. Thies of Giessen attempted to prove that gas gangrene appeared in two chief forms: a brown form amenable to surgical

[1] *Medical Supplement to the Review of the Foreign Press.* Compiled by the Medical Research Committee. January, 1919. London: H.M. Stationery Office. (1s. net.)

treatment caused by *B. welchii*, and a blue, much more deadly, variety with early thrombosis of the large vessels, caused by a mobile bacillus belonging to the butyric acid bacillus group. Latent gas gangrene infection, the liberation by operation of gas-producing organisms from a site in which they were encapsulated was recognized, and Marwedel collected a series of published cases in which gas gangrene was set alight again by the removal of a foreign body—affording, he thought, proof that the bacilli lie latent in contact with the foreign body and in the degenerated tissue enclosing it.

Hyperaemia is a term often employed by German surgical writers. It is claimed that hyperaemia promotes cleansing by rapid separation of sloughs and by stimulating phagocytosis. We are not surprised to find Bier as an advocate of hyperaemia; he produced venous congestion by a band applied continuously or rhythmically (one minute on and one minute and a half off), and by local application of linseed poultices and hot fomentations. Going further in his efforts to produce hyperaemia, he made a moist chamber of the wound in which pus ("tissue juice" he calls it) collected, the dressings not being changed for four to six days; then after irrigation of the wound he found active granulation tissue formation in full swing. Bier seemed to have had little success in dealing with gas gangrene by hyperaemia, and not many surgeons adopted his methods.

Chlorine water is frequently referred to, but the antiseptic value of Carrel-Dakin solution or of eusol was not understood. "Chlorine water" was regarded as a means of producing hyperaemia and of demarcating dead from living tissues, instead of, as we have come to regard it, an antiseptic chemically delicate and bactericidally powerful, easy to use, and painless for the patient. Aniline dyes as antiseptics were not much in favour, though a certain "vuzin" (isoctylhydrocuprein) was strongly recommended by Klapp in May, 1918. This seems to have been an irritating and painful substance though of high antiseptic power.

If we may judge from perusal of these excerpts, the Germans became alive as soon as other nations to the character and danger of war wounds, and fought hard to combat the ravages of sepsis and gas gangrene. Why they failed to recognize the immense advance made by the Carrel–Dakin–Daufresne method we cannot suggest, except that the thing was not German, and therefore could not be good. In any case it is characteristic of the German mind that it sought to explain the action of hypochlorites and other antiseptics by the theory of hyperaemia, travelling, it seems to us, very widely astray in reviving linseed poultices and fomentations instead of recognizing the beautiful and convincing work of Carrel and clinical observations of many surgeons by which sterilization of a wound in a given time became almost mathematically certain. There would appear to have been no original contribution by the German military surgeons to the problems of treatment of war wounds.

THE CLINICAL MEETING OF THE BRITISH MEDICAL ASSOCIATION, APRIL 8–11.

THE President of the Royal College of Physicians of London (Dr. Norman Moore) has informed the secretaries of the clinical meeting of the British Medical Association to be held in London next month that it will give him and the officers of the College great pleasure to receive on Thursday, April 10th, members of the British Medical Association and Colonial or American guests who would like to see the portraits and books of the College. Tea will be provided at 4.30, and Dr. Norman Moore will point out some of the chief objects of interest. At 6 p.m. Sir H. D. Rolleston, K.C.B., will give a Lumleian lecture on cerebro-spinal fever in the Library. The President of the Royal College of Surgeons of England (Sir George Makins) will hold a reception at the College (Lincoln's Inn Fields) on Wednesday, April 9th, from 4.30 till 6 p.m., when there will be an exhibition of Hunterian and Listerian relics and other objects of interest. As already announced, the Metropolitan Counties Branch of the British Medical Association will hold a reception in the Guildhall, London, lent by the Lord Mayor, on the evening of Tuesday, April 8th, when the guests will be received by Sir T. Clifford Allbutt, K.C.B., F.R.S., President of the Association. On Wednesday, April 9th, the Royal Society of Medicine will hold a reception at its house (1, Wimpole Street, W.1.). On Thursday evening, April 10th, a dinner will take place at the Connaught Rooms. Ladies will be invited to these three entertainments, but the number of invitations which can be issued is in each case limited, and early application should be made. Communications should be addressed to the General Secretaries, British Medical Association (Room 46a), 429, Strand, London, W.C.2. We must repeat the warning that, owing to the fact that so many hotels are still occupied by various Government departments, there may be considerable difficulty in obtaining accommodation. The programmes for the three sections have undergone a few modifications in detail since they were published in the SUPPLEMENT to the JOURNAL of March 8th. In the Section of Preventive Medicine and Pathology a communication will be made on Friday, April 11th, at noon, by Major-General Sir John Rose Bradford, A.M.S., Captain E. F. Bashford, R.A.M.C., and Captain J. A. Wilson, R.A.M.C., on filter-passing virus in certain diseases, with special reference to polyneuritis, encephalitis, trench fever, influenza, and nephritis. A preliminary note by these three officers on the virus of the last three named diseases was published in our columns on February 1st (p. 127), and an account of their observations on polyneuritis, founded on their paper in the *Quarterly Journal of Medicine*, was published in the JOURNAL of February 22nd (p. 224). On the morning of April 11th, at 10 a.m., a discussion on malaria will be opened by Lieut.-Colonel S. P. James, I.M.S.; and Sir Ronald Ross, K.C.B., F.R.S., who will be in the chair, will arrange a demonstration on malaria and an exhibition of specimens. A demonstration on malaria will also be given on Wednesday, April 9th, by the London School of Tropical Medicine at its new central premises, Endsleigh Palace Hotel, Gower Street, W.C.1. At the discussion on the dysenteries, to be opened by Colonel L. S. Dudgeon, C.M.G., A.M.S., and Professor W. Yorke, on Wednesday morning, Colonel S. L. Cummins, C.M.G., A.M.S., Adviser in Pathology, British Armies in France, will be in the chair. A demonstration on the subject will be given on the following afternoon at St. Thomas's Hospital. At the discussion on influenza, for which the Sections of Medicine and of Preventive Medicine and Pathology will combine, the chair will be taken by Colonel Haven Emerson, Medical Corps, U.S.A. At the discussion on war neuroses in the Section of Medicine the chair will be taken by Sir David Ferrier, M.D., F.R.S.; the subject will be introduced by Lieut.-Colonel F. W. Mott, and Lieut.-Colonel A. F. Hurst will give a kinematograph demonstration of illustrative cases. It has been decided that the papers with which the discussions in the several sections will be opened shall be put into print and copies supplied beforehand to those who intend to take part in the discussions. It is hoped that all those who have kindly consented to open discussions will remember that they are asked to supply the text of their opening remarks by March 14th; the text should not exceed 5,000 words, and may of course be shorter if desired.

HOSPITAL TEACHING UNITS.

MUCH publicity was given last week to an announcement made by Lord Knutsford on March 5th, at the quarterly Court of Governors of the London Hospital. So deftly did Lord Knutsford handle his theme that the general public may have formed the idea that the London Hospital alone of the hospitals of London contemplates the appointment of whole-time salaried staffs for certain duties. The fact is, of course, that, as we have frequently indicated, this matter has been engaging the close attention of the authorities of the great teaching schools for some time past; the object is to place the education of the medical student on a sounder basis, having regard to the growing complexity of medicine and the increasing number of methods of precision in diagnosis by which treatment is guided. The object may be attained in more than one way, and the governors of the London Hospital, under the inspiration of its able chairman, have been the first to sanction an experimental scheme. Lord Knutsford, after dealing generally with the existing arrangements for the medical service of the hospital, said that the committee and medical staff had come to the conclusion that there must be some modification in the system, and that an opportunity for trying an experiment was afforded by the two vacancies now occurring in the honorary medical staff through the retirement of Dr. Henry Head and Dr. F. J. Smith. There was no question, he said, of changing the present honorary staff for a paid and whole-time staff; but, instead of appointing honorary physicians to fill the two vacant posts, whole-time and adequately paid officers would be appointed to the vacant beds. Under the proposed arrangement the team or "firm" would consist of a director, three clinical assistants, laboratory assistants, and clerical assistants, all giving their whole time to the work and paid for their services. In addition to the duty of teaching, each unit would carry out the same work as other parts of the staff of the hospital, admitting cases in the ordinary way. The staff would be occupied with the cure of disease, research into its cause, and the education of students. Lord Knutsford added that if the scheme proved sound and advantageous it might be repeated as vacancies occurred, while whole-time units might be formed on similar lines for such special departments as those of dermatology, syphilology, gynaecology, orthopaedics, and genito-urinary surgery. His committee asked the permission of the governors to make a limited experiment now which would be judged by its results. It will be seen that the scheme thus outlined has been inspired in part at least by the report of the Royal Commission on the University of London and by the principles laid down in the memorandum addressed by Sir George Newman to the President of the Board of Education. The idea, we believe, has commended itself to many teachers and members of the governing bodies of hospitals, but the main obstacle has been that of finance. It is expected, however, that the Board of Education will be disposed to obtain the sanction of Parliament for largely increased grants to such medical schools as adopt a scheme conforming to the requirements of the Board.

GRADUATION INSTRUCTION IN LONDON.

IN an article on this subject last week we stated that a movement to establish a permanent system of graduate medical instruction in London, to be managed by a post-graduate association, was in a forward state. We understand that a public meeting will be held in London on March 31st, under the chairmanship of Sir William Osler, when a scheme, which has received the approval of the existing London medical schools, will be considered. It is proposed that the instruction shall comprise general and special courses, and that after attending one of the latter a graduate might apply to the teacher responsible for the courses for permission to do research work under him or to act as his clinical assistant; for instance, a graduate after attending a course of children's diseases or orthopaedics could then, if regarded as sufficiently qualified, stay on at the hospital as clinical assistant, or do research under the physician for children's diseases or the orthopaedic surgeon respectively. Those who have given post-graduate instruction in the London post-graduate schools and special hospitals in the past will continue to do so in co-operation with the other teaching institutions working with the association, which include all the undergraduate medical schools in London. The medical schools of the United Kingdom will be invited to co-operate with the London association in providing periodic courses to run concurrently, especially at times, such as the summer months, when those seeking to attend courses will probably exceed the number that can be dealt with adequately in London. The recently formed British Association of Radiology and Physiotherapy has agreed to co-operate. As an example of what is meant by a special course at a general school, diseases of digestion may be taken; the course would include lectures by an anatomist, a physiologist, a pathologist, a radiographer, a physician, and a surgeon, clinical teaching in the wards and out-patient departments, practical instruction in the *x*-ray investigation of disorders of digestion by the radiographer, in chemical analysis of gastric contents and faeces by the clinical chemist, in bacteriological and microscopical examination by the pathologist, demonstrations on museum and *post-mortem* specimens, and on the use of the sigmoidoscope, and opportunities for seeing operations on cases already studied. The participating schools would be under no financial liability in connexion with the scheme, and it is hoped that sufficient money will be forthcoming from private donations to provide for the erection and equipment of a building containing offices for the permanent secretarial staff, a library, recreation and lunch and tea rooms. Each graduate student will pay a registration fee, and fees for courses. It is hoped that the cost of maintenance of the organization and house of this post-graduate association may be in part provided by an endowment raised by subscription and in part by a grant from the Board of Education. The permanent secretarial staff will co-operate with the teaching institutions in organizing courses of instruction, will receive fees, and register students. It is intended that the house of the association shall be a building in central London, and it is hoped that it will become the meeting place for the medical graduates of the empire and allied nations.

EMERGENCY POST-GRADUATE FACILITIES IN LONDON.

IN the JOURNAL of last week (p. 281) we gave a preliminary account of the arrangements made by the Fellowship of Medicine with the medical schools in London and other hospitals for an emergency post-graduate course of three months for qualified medical officers of the R.N., R.A.M.C., and R.A.F., and of the Dominion, United States, and Allied Forces. A list was given of the institutions participating in the scheme and of the special courses already in progress. The Fellowship of Medicine was founded to link together all English-speaking members of the medical profession for the exchange of medical knowledge and the advancement of the medical sciences; the present scheme falls naturally within the scope of such ideals. Facilities have been offered by the Directors of the Overseas Medical Services whereby medical officers are allowed three months' leave for post-graduate study before demobilization or return to their home units. In addition to the facilities for clinical and laboratory instruction at the various schools and hospitals enumerated in our last issue, arrangements are being made by the Fellowship of Medicine for a course of lectures and demonstrations on general and special subjects, to be held five days a week

for several months, at the house of the Royal Society of Medicine (1, Wimpole Street, W.). We understand that the number of applications to join the course received from members of the Canadian, American, and Australian Medical Services is already large, and it is expected that the programme of lectures and demonstrations will be completed at once. The purpose in view has been to provide a centralized course of instruction for those whose time is limited but who wish to devote every possible moment to the furtherance of their medical education. The special post-graduate course on the medicine and surgery of the liver and gall bladder at the London (Royal Free Hospital) School of Medicine for Women will begin on Monday, March 17th, at 10 a.m., and will continue during the two weeks following; those wishing to attend should send in their names to the Warden and Secretary (8, Hunter Street, Brunswick Square, W.C. 1) at once. Full particulars of all the courses at the various general and special hospitals may be obtained from the Secretary to the Fellowship of Medicine, 1, Wimpole Street, where time tables, syllabuses, and daily programmes are posted in the entrance hall.

THE MECHANISM OF BACTERIAL INFECTION.

In a paper communicated to the Royal Society on February 20th, W. E. Bullock and W. Cramer stated that the bacteria of gas gangrene (*B. welchii*, *Vibrion septique* and *B. oedematiens*) and of tetanus, when completely freed from their toxins either by washing or by heating to 80° for half an hour so that spores are formed, do not produce the specific disease when injected into a mouse or a guinea-pig. The normal animal disposes of the bacteria mainly by lysis and partly also by phagocytosis; this defensive mechanism is so efficient as to render these bacteria non-pathogenic when injected by themselves. It was found that if a small dose of a soluble ionizable calcium salt was injected together with the bacteria of their spores, the specific disease was elicited in a very virulent form. The chlorides of sodium, potassium, ammonium, strontium and magnesium, when injected together with *B. welchii*, did not produce gas gangrene. A direct contact between the bacteria and the calcium salt is not essential. The phenomenon will occur if the bacterial suspension and the calcium salt are injected at different times into the same site or into different sites at the same time or at different times. From these experiments and other experimental evidence the conclusion was drawn that calcium salts when injected subcutaneously produce a local change in the tissues at the site of injection. The effect of this dose is to bring about a local breaking down of the defensive mechanism against the bacteria of gas gangrene and tetanus. The term "kataphylaxis" was proposed to designate this new phenomenon. Sterile watery extracts of earth were found to be capable of producing this phenomenon. It was thought that they might owe this property in many cases entirely to the presence of calcium salts, but some evidence was found that in some cases the extracts of earth owed their kataphylactic action to the presence of chemical substance or substances not yet identified. The bearing of these observations on the etiology of gas gangrene and tetanus lends them much interest.

THE THERAPEUTICS OF RADIUM.

The report of Dr. Arthur Burrows, radiologist to the Manchester and District Radium Institute, for 1918, describes the work done during that year and contains also a summary of the lessons that have been learnt and the results obtained during four years. The number of persons applying for treatment has increased and reached 648 in 1918. In 48 cases of malignant disease the patient was rendered free from symptoms and signs during the course of the year, and 18 out of 33 cases of rodent ulcer treated to a termination were cured. In the summary of the four years it is stated that practically all early rodent ulcers can be cured by radium alone. To date, 31 cases have been well for two years or more, and of a number of other patients who have not reported it is believed that many are still well. With regard to the treatment of malignant disease, it is observed that at present only inoperable cases are treated by radium. In its use various factors have to be considered: extremely rapidly growing tumours, like melanotic sarcomata, cannot be expected to yield good results; it is also found that carcinoma of the tongue does not usually respond favourably to radium. Extremely large growths are apt to slough and ulcerate, and the tendency to resolution is small. Growths involving bone cannot as a rule be satisfactorily treated, but a case of periosteal sarcoma is illustrated, which remained well for twelve months and then died of another disease. Tumours which retain some mobility, have a good blood supply, and are surrounded by healthy tissues, generally respond best to radium treatment. So far, it has not been satisfactorily demonstrated that the histological nature of the tumour, with a few exceptions, has much bearing on the immediate result of radium treatment. The best results from radium treatment have been obtained in carcinoma of the cervix of the uterus. "These cases are always treated by burying five to seven platinum tubes, the walls of which are three-tenths of a millimetre thick, containing altogether not less than 120 millicuries of radium emanation. The tubes are maintained in position for twenty-four hours by gauze packing. The quantity of emanation used must vary somewhat with the size of the tumour, but it is found that the best results are not obtained if not less than 120 millicuries are used. This heavy dosage is, of course, somewhat of a drain on the resources of any radium institute." From a numerical list of the cases of malignant disease of all varieties treated at the Institute it appears that thirty such cases previously deemed inoperable have been well for a period of two years or more. Radium has a very remarkable and rapid effect on certain local tumours. Lymphosarcoma disappears rapidly, but fresh tumours usually continue to arise in distant lymphatic glands. Glioma or gliosarcoma of the orbit disappears within a fortnight, but returns. Good results are obtained in some sarcomata, notably inoperable sarcoma of the superior maxilla. The local lesions of Paget's disease of the breasts, as a rule, clear up, but as the formation of secondary deposits in the breast and glands is to be expected, a radical operation should be advised. Individual secondary carcinomatous glands, if not too large, rapidly disappear if treated by burying radium tubes in their substance, but infection of glands at a distance commonly ensues. Another point made is that radium treatment may render operation possible, in carcinoma of the breast, of the bladder, of the cervix of the uterus, and for the removal of sarcomatous masses. Apart from all this, radium is of great use in relieving the discomfort of patients suffering from hopeless cancer. It is employed to relieve pain, heal ulceration, check discharges, stop bleeding, and thus to improve the general health of the patient. An appeal is made to the supporters of the Manchester Radium Institute to provide more suitable premises, and special beds for the treatment of cases in which it is thought desirable to bury tubes of radium emanation in the growths. Well lighted, well ventilated premises are very essential for the welfare of the radiologists and the nurses.

MEDICAL RESETTLEMENT.

The Presidents of the Royal Colleges in London and Edinburgh have made appeals drawing attention to one of the problems of demobilization which deserves sympathetic consideration from the general public. Sir R. W. Philip and Dr. R. McKenzie Johnston write: "Many doctors who, throughout the war, have held commissions in the

Navy, the Army, or the Air Force, have now to face the question of return to civil practice. This is for them far from an easy matter. The natural growth of their practices has ceased during their absence. In spite of loyal help given, in most cases, by their colleagues—who deserve all thanks for their ungrudging efforts—and by professional committees, to hold together the practice in the interest of the absentee, the normal wastage due to deaths, changes of residence, etc., has had the effect of materially reducing the practice from what it was in 1914. Beyond such unavoidable influences there is risk of curtailment from other causes. It is known to us that many of those who have been absent with the forces of the Crown view their future with grave anxiety. In a profession like medicine where the work is essentially personal, the future of those men evidently depends largely on the attitude of the general public. It is greatly to be hoped, therefore, that every patient will feel it an honourable duty to return, whenever possible, to his old doctor, and that public institutions will reinstate, as far as they can, to their former positions those medical officers who have sacrificed so much at the call of the empire." Dr. Norman Moore and Sir George Makins, after making special reference to public appointments and expressing the hope that public bodies will reinstate as far as possible to their former posts the medical officers who before the war held appointments in their service, continue: "It will be an important aid to the returning men if their former patients will continue to call them in, and it may be pointed out that the practitioners returning from service with the army will come home with an enlarged experience and are likely to be of greater value than before to the patients to whom they return. They have in most cases been engaged in duties which have increased their professional knowledge and skill."

THE ABUSE OF COCAINE.

EVERYBODY who reads the newspapers must have been struck by the frequency of prosecutions during the past few months for the illegal sale or possession of cocaine, and of similar but less frequent charges with regard to opium. In one case, out of which a charge of manslaughter, still unsettled, arose, the coroner, in addressing the jury, called their attention to the fact that the proceedings before him were taken under the regulations made in virtue of special powers conferred by the Defence of the Realm Act, a temporary measure. He appeared to be of opinion that the proceedings could not have been taken under the ordinary laws and regulations. The numerous cases recently reported seem to prove that the cocaine habit is common among certain sets of people in this country. In Paris there are cocaine pedlars who ply their trade chiefly in night restaurants, and some of the cases reported favour the belief that secret peddling has been going on in London. The abuse of cocaine is by no means confined to Europe, and appears to be particularly prevalent in certain parts of India, especially Calcutta. Attempts have been made by International Conferences to regulate the sale of cocaine, as well as of opium and its derivatives. Such conferences were held in 1911–12, 1913, and 1914. Sir William Collins, one of the British delegates, brought up before the full Conference in July, 1914, draft articles, one of which would have bound the contracting powers to enact pharmacy laws and regulations so as to limit the manufacture, sale and use of morphine, cocaine, and their respective salts to medical and legitimate uses only, and to co-operate among themselves to prevent the use of these drugs for any other purpose. By a further article the undertaking was applied to heroin and to every new derivative of cocaine, or of morphine or any other alkaloid of opium which, as the result of scientific research, was generally recognized as giving rise to analogous abuse, or as producing the same injurious effects. At the last Conference (1914), the adoption of this international undertaking was obstructed by Germany. We are glad to observe that the Parliamentary Under-Secretary of the Foreign Office stated in the House of Commons, on March 10th, that the British Government hoped to bring the matter before the Peace Conference in Paris with a view to the adoption of a resolution binding the Powers represented at the Conference to the speedy enactment and enforcement of the laws, regulations, and measures contemplated by the Opium Convention of 1912 for the purpose of confining to medical and legitimate purposes the manufacture, sale, and use of opium, morphine, cocaine, and similar noxious and habit-forming drugs; such a resolution to be made binding on the enemy powers.

INFLUENZA.

THE deaths from influenza in the ninety-six great towns declined to 3,198 in the week ending March 8th, from 3,889 in the previous week, the London deaths being 597 (808 the previous week). The only towns with more than 100 deaths, apart from London, were Birmingham (134), Liverpool (149), Manchester (210), Salford (119), Bradford (106). Of these, Manchester and Salford returned more deaths than in the previous week—an increase of 14 at Manchester and of 23 at Salford. The only other great towns returning more deaths than in the previous week were Croydon, 26 (25); Hornsey, 18 (12); Tottenham, 26 (15); West Ham, 42 (40); Northampton, 8 (5); Great Yarmouth, 15 (13); Norwich, 16 (10); Swindon, 4 (3); Exeter, 15 (11); Bath, 4 (3); Bristol, 76 (70); West Bromwich, 27 (23); Dudley, 4 (2); Smethwick, 27 (15); Warrington, 29 (23); Bury, 25 (19); Burnley, 20 (8); Blackburn, 50 (46); Preston, 30 (23); Barnsley, 18 (14); Sheffield, 83 (64); Darlington, 17 (13); Cardiff, 36 (27); Merthyr, 7 (4); Swansea, 37 (17). The figures in brackets are the deaths returned in the previous week. It seems plain that this third wave is subsiding. From the week ending February 1st to the end of last week the great towns recorded 12,383 deaths from influenza, the maximum occurring in the week ending March 1st. In the last wave the maximum fell in the week ending November 9th, and the deaths from the week ending October 12th to the week ending November 16th (that is, the corresponding weeks) were 27,903. Thus, so far, the mortality has been about 44 per cent. of that experienced in the autumn.

SIR WILLIAM OSLER will deliver an address on acute pneumonic tuberculosis before the Tuberculosis Society on Monday, March 24th, at 8.30 p.m., at the house of the Royal Society of Medicine, 1, Wimpole Street, W.1.

Medical Notes in Parliament.

Ministry of Health Bill.—The consideration of the Ministry of Health Bill in Grand Committee of the House of Commons could not be begun on March 11th as anticipated owing to the illness of Dr. Addison. The first meeting was accordingly postponed until Thursday morning, March 13th, when Dr. Addison was present. Sir Archibald Williamson was appointed chairman. It was decided that the Committee should sit on Tuesdays and Thursdays from 11 till 1, and usually from 4 till 6. In the debate on the second reading exception was taken by several medical M.P.'s to the proposal that the Medical Research Committee should be placed under the control of the Privy Council. An additional argument for maintaining a central research body has been afforded by the decision that there is to be a separate bill for Scotland. There is, however, a feeling that the Ministry of Health should have some authority for scientific investigation in its own department, and alternative amendments have been put down by Dr. Farquharson and Sir Watson Cheyne to give this power. There is an impression that one or other of these amendments will be accepted.

No Sanction for State Hospitals under Ministry of Health Bill.—Mr. Leonard Lyle asked, on March 11th, whether, under the provisions of the Ministry of Health Bill, the Minister would have power to institute in any form state hospital treatment, other than that already sanctioned by Parliament; and whether he would require new legislation to enable him, if he wished, to convert any of the existing Poor Law infirmaries into state-conducted hospitals freed from association with Poor Law relief. Major Astor replied that no such powers as were

mentioned in the first part of the question were conferred by the Ministry of Health Bill; and specific legislation would be required for the purpose mentioned in the second part.

War Bonus on Officers' Pensions.—Sir L. Worthington-Evans announced, on March 6th, that the present bonus of 20 per cent. payable to disabled men and the widows of deceased men, which was awarded until the end of June next, would be extended until the last pay day in September next. The extension applied to all pensions and allowances in respect of which the war bonus was granted by the Cabinet decision of December last. For the period from January 1st last to the end of September, a bonus of 20 per cent. would be added to the disability retired pay of officers, and the disability pensions of nurses and naval warrant officers, and to the pensions and children's allowances of widows and relatives of officers granted for service in the war. In the case of regular officers and certain other cases the retired pay awarded was a composite sum covering service and disablement. In these cases the bonus would be confined to the latter element; it would be payable only in respect of the amount of disability retired pay which would have been awarded to a temporary officer of the same rank and having the same degree of disablement. The bonus would be added also for the same period to the alternative retired pay of officers, the alternative pensions of men, and the alternative pensions of the widows of all ranks. In the case of officers and their widows or relatives, there were, however, money limits, which the pensions and bonus combined must not exceed. These limits were at the following rates: Officers £300 a year, nurses £175 a year, naval warrant officers £175 a year, officers' widows (exclusive of children) £200 a year, naval warrant officers' widows (exclusive of children) £100 a year, officers' parents or sisters £100 a year, naval warrant officers' parents or sisters £75 a year. It was not necessary for applications to be made for the bonus, which, with arrears, would be paid as expeditiously as possible.

Women Doctors in Military Hospitals: Income Tax.—Mr. Baldwin, Secretary to the Treasury, in a written answer to Captain Tudor-Rees, stated that the ladies employed upon medical duties at the Military Hospital, Endell Street, London, were civilian medical practitioners, and were not serving as members of the naval or military forces of the Crown; he did not dispute that they were drawing pay and allowances under Royal Warant from army funds, and were under the command of the D.D.M.S., London District. The District Commissioners of Taxes, on appeal on behalf of some of these doctors, had decided that they were not entitled to service rates of income tax.

Doctors and Nurses for Home Duties.—In reply to Mr. Leonard Lyle, on March 11th, Captain Guest said that every effort was being made to release as many doctors and nurses as could be spared by the army. The latest returns gave the total number of trained and untrained nurses demobilized since the armistice as 7,441, and steps had been taken to demobilize large numbers of medical officers. This had now become possible, owing to the removal of certain restrictions which had delayed action.

Irish Poor Law Medical Officers' Pay.—Mr. Macpherson (Chief Secretary for Ireland) stated on March 10th, in reply to Sir William Whitla, that the Local Government Board had urged all the boards of guardians throughout Ireland to make graded scales of payment to the Poor Law medical officers, with the result that 143 boards out of a total of 154 had granted improved remuneration to medical officers. There were only eleven boards of guardians which had not improved the salaries of their medical officers, and these were again being urged to adopt graded scales of salary. Mr. Macpherson promised to consider the suggestion that steps should be taken to improve the conditions of service with a view to provision being made therefor in the Ministry of Health Bill which would be extended to Ireland.

Influenza and Cholera in India.—Mr. Fisher, in a written reply to Mr. Bennell, stated that the following telegram had been received from the Government of India:

> The first influenza epidemic in Bombay City was in June last and was responsible for over 1,600 deaths; subsequent virulent outbreaks occurred in September, October, and early in November, during which period the mortality in Bombay City exceeded the normal by 14,678. Besides bacteriological investigation relief measures consisted of treatment in hospitals, house-to-house visitation, free supply of milk and woollen jackets to prevent pneumonia, opening of roadside dispensaries in several wards, and supply of free medicine. Cholera appeared in epidemic form during second week of December last and continued till third week of February. The disease was mainly confined to mill districts, and recent strikes not only aggravated it but prolonged its duration. Deaths reported in Bombay City from cholera during the period number 9,589. In view of scarcity prevailing in neighbouring districts steps were taken to segregate immigrant labour in special camps, etc. Deaths from influenza in India as a whole in 1918 are calculated at 5,000,000 for British India and 1,000,000 for Indian States.

Guilty but Insane.—In reply to a question about a man found guilty of murder, but insane at the time, at the recent Kent assizes, the Home Secretary said that the man had been certified under the Mental Deficiency Act in 1914, but could not be sent to a home at that time as no suitable accommodation was available. At the outbreak of war the building just completed for a state institution at Moss Side was lent to the War Office as a hospital for men suffering from mental disorders. The building, it was hoped, would be returned to the Board of Control in a few months. Until this was done, the accommodation for imbeciles with criminal tendencies would be insufficient. In the meantime some temporary accommodation would be provided by the Board in another institution as soon as the staff was available.

THE WAR.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died on Service.

SURGEON SUB-LIEUTENANT F. W. LE MARCHAND.

Surgeon Sub-Lieutenant F. W. Le Marchand, R.N.V.R., was returned as having died on service, in the casualty list published on March 3rd.

ARMY.

Died on Service.

CAPTAIN J. CAMPBELL, R.A.M.C.

Captain John Campbell, R.A.M.C. (S.R.), died at Liverpool on February 19th, aged 30. He was the third son of Mr. J. S. Campbell of Wigan, and was educated at Liverpool University, where he took the Kanthack medal in pathology in 1909, and graduated M.B. and Ch.B., with honours, in 1910, and M.D. in 1916. He also gained the Robert Gee research fellowship in anatomy at Liverpool. After filling the posts of house-surgeon and house-physician in the Royal Infirmary, Liverpool, and of senior assistant to the professor of anatomy in the Royal College of Surgeons, Ireland, he became demonstrator of anatomy in Liverpool University, and surgical tutor and registrar of Liverpool Royal Infirmary. He took a commission as lieutenant in the Special Reserve of the R.A.M.C. on August 6th, 1914, and was promoted to captain on April 1st, 1915. He went to France in August, 1914, and served for some time as surgeon in No. 7 Stationary Hospital, Boulogne, then in the same post in a general hospital at Camiers, and subsequently as orthopaedic surgeon in a London hospital.

CAPTAIN F. B. CHENOY, I.M.S.

Captain Ferozeshah Bapuji Chenoy, Indian Medical Service, was reported as having died on service, in the casualty list published on February 28th. He was educated at Bombay University, where he graduated L.M.S. in 1912, and at the London Hospital, taking the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1913. He entered the I.M.S. as lieutenant on August 1st, 1914, and was promoted to captain on August 1st, 1917. He was just thirty years of age.

DEATHS AMONG SONS OF MEDICAL MEN.

Brown, Ralph Vipont, younger son of Dr. Vipont Brown of Longsight, Manchester, died in France on March 1st, aged 20, at his work under the Friends' War Victims' Relief Committee.

Dunlop, Harry Holms-Kerr, Lieutenant Army Service Corps, youngest son of the late Dr. James Dunlop of Glasgow, died in Italy of influenza on February 13th, aged 33.

FitzPatrick, Noel, Australian Flying Corps, son of Dr. FitzPatrick of New South Wales, died of pneumonia at Gibraltar on February 16th. He had gained the Military Medal before he got his commission.

Johnson, Malcolm, only son of the late Mr. Frank Johnson, F.R.C.S., of Spain, died at Endsleigh Palace Hospital for Officers on February 18th.

Johnson, Samuel Clement, late Lieutenant Royal Field Artillery (T.F.), son of the late Colonel W. E. Johnson, I.M.S., died suddenly on February 8th, at Bournemouth, of illness contracted on active service. His commission was dated March 3rd, 1917.

Milligan, James Henry, Captain 58th Vaughan's Rifles, eldest son of the late Dr. David Milligan of Edinburgh, reported wounded and missing in France on September 25th, 1915, now presumed killed on that date. He was born on December 9th, 1886, got a commission in the Connaught Rangers on May 4th, 1907, and joined the Indian Army on October 26th, 1909.

Milligan, John Richard, Lieutenant Indian Army Reserve of Officers, son of the late Dr. David Milligan of Edinburgh, reported wounded and missing on March 8th, 1916, in Mesopotamia, now presumed killed on that date, in the unsuccessful attempt to relieve Kut. His commission was dated December 11th, 1914.

Murray, Ulric George, eldest son of Colonel G. R. Murray, A.M.S. (temporary), Professor of Medicine in the Victoria University, Manchester, died of pneumonia at Winchester on February 17th, aged 24, while on duty at a Y.M.C.A. hut. He had served for some time in France under the Red Cross.

Saunders, Harold Cecil Rich, D.S.O., Major East Yorkshire Regiment, eldest son of the late Mr. Arthur Rich Saunders, F.R.C.S., of Kingston, Jamaica, reported wounded and missing at Hangard Wood, on the Somme, March 30th, 1918, now presumed killed on that date. His brother, Captain Arthur Hugh Rich Saunders, 2nd King Edward's Own Gurkhas, the Sirmoor Rifles, was killed on March 8th, 1916, while leading an assault on the Dugalla redoubt, Mesopotamia, in the unsuccessful attempt to relieve Kut.

HONOURS.

A SPECIAL Supplement to the *London Gazette* dated March 8th contains a further list of awards in recognition of "gallantry and devotion to duty in the field." The list includes the following medical officers, who receive the awards indicated; all belong to the R.A.M.C. unless otherwise noted:

Bar to D.S.O.

Lieut.-Colonels: Daniel P. Kappele, D.S.O., 5th Ambulance C.A.M.C. (D.S.O. gazetted June 3rd, 1918); Thomas McC. Leask, D.S.O., 10th Field Ambulance C.A.M.C. (D.S.O. gazetted January 1st, 1918).

Major Orvil A. Elliott, D.S.O., C.A.D.C., attached 5th Field Ambulance C.A.M.C. (D.S.O. gazetted February 15th, 1919).

Captain (acting Lieut.-Colonel) William R. Gardner, D.S.O. (S.R.), attached 138th Field Ambulance (D.S.O. gazetted January 1st, 1918).

D.S.O.

Major Robert F. Craig, 15th Field Ambulance A.A.M.C.

Captains (acting Lieut.-Colonels): William W. Boyce, No. 2 Field Ambulance; William H. L. McCarthy, M.C. (S.R.), attached 19th Field Ambulance.

Temporary Captain Clarence R. Young, M.C., attached 1st Battalion Shropshire Light Infantry.

Second Bar to Military Cross.

Temporary Captain (acting Major) George Rankine, M.C., D.A.D.M.S., 9th Division (M.C. gazetted November 4th, 1915; first bar gazetted July 26th, 1918).

Bar to the Military Cross.

Captains (acting Majors): Herbert B. Low, M.C., 2/2nd (Northumbrian) Field Ambulance, T.F. (M.C. gazetted January 10th, 1917); James B. Scott, M.C. (S.R.), attached 16th Field Ambulance (M.C. gazetted October 18th, 1917).

Captains: James E. Barry, M.C., C.A.M.C., attached 2nd Canadian Battalion East Ontario Regiment (M.C. gazetted December 2nd, 1918); Frederick T. Campbell, M.C., C.A.M.C., attached 8th Canadian Battalion, Manitoba Regiment (M.C. gazetted February 1st, 1919); Henry C. Davis, M.C., 10th Field Ambulance, C.A.M.C. (M.C. gazetted January 18th, 1918); Harry C. Moses, M.C., 5th Field Ambulance, C.A.M.C. (M.C. gazetted February 15th, 1919).

Temporary Captains: Michael C. Burke, M.C., attached 2nd Battalion Durham Light Infantry (M.C. gazetted August 25th, 1916); George M. Cameron, M.C., attached 65th (W. Lancs.) Field Ambulance, T.F. (M.C. gazetted July 26th, 1918); James C. Ogilvie, M.C., attached 1st Battalion Border Regiment (M.C. gazetted September 16th, 1918); John Roger, M.C., attached 1st Battalion Border Regiment (M.C. gazetted September 16th, 1918); David C. Suttie, M.C., attached 1/2nd (North Midland) Field Ambulance, T.F. (M.C. gazetted January 1st, 1917); Gwilym D. Watkins, D.S.O., M.C., attached 2nd Battalion West Riding Regiment (M.C. gazetted January 1st, 1918); William B. Wilson, M.C., attached 1st Battalion Devon Regiment (M.C. gazetted December 2nd, 1918).

Lieutenant (acting Major) James La F. Lauder, D.S.O., M.C., 138th Field Ambulance (M.C. gazetted December 11th, 1916).

Lieutenant (temporary Captain) William H. Ferguson, M.C., attached 8th Battalion Royal Berkshire Regiment (M.C. gazetted September 16th, 1918).

Military Cross.

Captains (acting Majors): Henry M. Barrett, No. 2 Field Ambulance, C.A.M.C.; William D. Frew, T.F., attached 131st Field Ambulance; Harry P. Rudolph (Egypt); Michael White, No. 1 Field Ambulance.

Captains: Leslie T. Allsop, 10th Field Ambulance, A.A.M.C., attached 39th Battalion Australian Infantry; Joseph R. Anderson, A.A.M.C., attached 45th Battalion Australian Infantry; William J. Binns, A.A.M.C., attached 33rd Battalion, Australian Infantry; John S. Clarke, T.F., attached 5th Battalion Royal Irish Rifles; Lambert D. Densmore, C.A.M.C., attached No. 1 Field Ambulance; Albert G. Fleming, C.A.M.C., attached 4th Canadian Infantry Battalion; Frederick McN. Johnson, C.A.M.C., attached No. 2 Field Ambulance; Arthur P. Lawrence, 6th Field Ambulance, A.A.M.C.; Gladstone W. Lougheed, 4th Field Ambulance, C.A.M.C.; Allan Y. McNair, C.A.M.C., attached 10th Infantry Battalion Alberta Regiment; James Thompson, attached 2nd Battalion, Bedfordshire Regiment; Rene E. A. Weston, C.A.M.C., attached No. 2 Canadian Field Ambulance; Henry P. Whitworth, S.R., attached 6th Battalion King's Own Scottish Borderers; Edward A. Woodward, 8th Field Ambulance A.A.M.C., attached 29th Battalion Australian Infantry.

Temporary Captains (acting Majors) Samuel B. B. Campbell, 108th Field Ambulance; James A. Doull, 103rd Field Ambulance; Stanley Fenwick, 16th Field Ambulance; Robert B. Rutherford, 91st Field Ambulance, attached 6th Division; Christopher Sullivan, 75th Field Ambulance; Alexander W. Uloth, 132nd Field Ambulance.

Temporary Captains Harold J. Bensted, 140th Field Ambulance, attached 138th Field Ambulance; Gideon A. Beyers, S.A.M.C., attached 1st Battalion South African Infantry; Gavin S. Brown, attached 1/4th Battalion Leicester Regiment, T.F.; George O. Connell, attached H.Q. R.E., 41st Division; Cedric L. Dold, attached 1st Battalion South Wales Borderers; Codanda Madieh Ganapathy, I.M.S., attached Grenadiers, I.A.; George A. C. Gordon, attached London Regiment; Edward H. H. Granger, attached 1st Battalion Leicester Regiment; Zachariah A. Green, attached 7th Battalion Wilts Regiment; Alfred P. Hart, No. 2 Field Ambulance; St. George M. L. Homan, attached 1/8th Battalion Notts and Derby Regiment T.F.; George Jackson, attached 15th Battalion Notts and Derby Regiment; Henry R. Lawrence, 1st Field Ambulance, S.A.M.C.; Malcolm Manson, attached 10th Battalion Royal West Surrey Regiment; Robert C. McMillan, attached 38th Battalion M.G.C.; Frederick R. Sturridge, attached Royal Scottish Fusiliers; Edward C. Tamplin, attached 9th Battalion Scottish Rifles; William Tudhope, 17th Field Ambulance; Robert W. L. Wallace, attached 9th Battalion East Surrey Regiment.

Lieutenant (temporary Captain and acting Major) Gerald E. Spicer, 107th Field Ambulance, R.A.M.C.

Lieutenants: Will. G. F. Owen-Morris, S. R., attached 2nd Battalion, Leinster Regiment; Sohan Lall Bhatia, I.M.S., attached Infantry I.A. (Egypt).

Temporary Lieutenant William Hickey, attached 8th Battalion, East Surrey Regiment.

CIVIL PRACTITIONERS' WAR SERVICES.

The names of the following civil medical practitioners have been brought to the notice of the Secretary of State for War for valuable medical services rendered in the United Kingdom in connexion with the war:

J. McK. Ackland, G. Alexander, C. W. Alford, C. M. Anderson, W. D. Anderson, Sir W. M. A. Anderson, J. F. Atkins, S. E. Atkins, J. P. Atkinson. W. Baigent, W. E. Baker, G. F. Barnes, W. R. Bates, R. A. Bennett, P. H. Benson, H. Bentley, H. W. Bethell, J. Black Milne, R. H. Blaikie, J. F. Blood, C. Bolton, V. Bonney, H. Bott, R. O. Bowman, J. C. O. Bradbury, F. Brightman, T. B. Broadway, E. H. Brock, T. H. Brown, M. Bryson, H. M. Bundey, W. F. R. Burgess, M. Burnet, A. C. Burrows, H. B. Butler, W. B. Butler, G. Y. Caldwell, J. E. G. Calverley, C.M.G., W. E. Cant, J. W. Carr, A. J. Carter, E. G. Carter, J. W. Caton, E. Cautley, W. L. Chubb, J. Chute, Miss I. M. Clarke, J. J. Clarke, T. W. Clay, P. P. Cole, L. Cole-Baker, D. W. Collings, E. G. Colville, C. T. T. Comber, C. J. Cooke, J. G. Cooke, H. P. Costobadie, E. A. R. Covey, G. Cran, E. P. Cumberbatch, C. Curd, F. C. Curtis. H. G. Dain, J. D. Davies, H. C. Dent, L. G. Dinon, L. C. T. Dobson, J. A. Drake, C. E. Drennan, D. Drummond, R. H. W. Dunderdale, M. A. Dutch. H. F. Ealand, A. M. Elliot, W. F. Erskine, W. J. Essery, C. J. Evers, R. W. T. Ewart, H. L. Ewens, E. H. Ezard. G. Faris, E. Farr, F. Fawssett, G. W. B. Featherstone, R. A. Fegan, E. C. Fenoulhet, A. C. Ferguson, W. A. Fogerty, S. C. Fowler, T. W. Fowler, A. D. Fraser, A. M. Fraser, L. Fraser, A. L. Fuller, P. Furnivall. M. H. Gardiner, A. T. B. Gavin, Miss G. Gazdar, H. W. Gell, W. D. Gimson, B. Glendining, L. G. Glover, H. J. Godwin, R. M. Going, T. A. Goodfellow, W. A. Gordon, T. P. Gostling, R. Grant, Miss E. Gray, H. T. Gray, G. R. Green, E. C. Greenwood, G. Grindlay, R. M. Grogono, C. N. Groves, G. Gunn, L. G. Guthrie. G. R. Harland, H. Head, J. W. Heekes, W. Hern, H. T. Herring, C. M. Hewer, E. S. E. Hewer, T. B. Hickley, D. W. C. Hood, C.V.O., G. H. J. Hooper, S. B. Hulke. J. Ingram, W. S. Inman. A. Jackson, P. S. Jakins, J. R. Jeffrey, R. C. Jewesbury, R. G. Johnson, G. J. Johnston, G. Jonckheere, S. E. Jones, J. F. Jordan, N. H. Joy. D. Kennedy, F. W. Kennedy, J. C. King, T. S. Kirk, Miss A. Kirker, Mrs. A. V. Knox. F. Lace, J. H. W. Laing, G. J. Lane, F. C. Langford, C. P. Lankester, J. B. Lawford, P. C. W. Laws, A. Lawson, C. F. Le Sage, E. E. Lewis, P. G. Lewis, J. E. Linnell, F. S. Lloyd, J. D. Lloyd, T. E. Lloyd, G. H. Lock, J. P. Lockhart-Mummery, H. L. Lowis, A. Lyndon, E. Lynn. D. R. Macdonald, J. Macdonald, H. J. Macevoy, G. MacGill, H. H. B. Macleod, F. R. Mallett, H. Marshall, F. E. Marston, W. Martin, W. B. Maurice, L. T. McClintock, A. A. McConnell, K. C. McKenzie, H. L. McKisack, G. E. P. Meldon, J. H. Menzies, J. Metcalfe, I. G. Modlin, A. P. Mooney, A. Morison, A. E. Morison, E. F. Morris, R. D. Mothersole, W. T. Mullings, R. A. Murray. J. F. Nall, G. P. Newbolt, W. Norbury, A. E. Normington, W. W. Nuttall. E. J. P. Olive, W. W. Ord, D. R. Oswald. T. E. Pallett, F. S. Palmer, J. L. Palmer, Sir T. W. Parkinson, A. R. Parsons, A. G. Paterson, E. le F. Payne, H. G. Pennell, E. V. Perry, J. P. Philip, T. B. Poole, J. F. Porter, J. C. Potter, R. H. Powers, G. L. Preston, W. A. Pride, E. L. Pritchard, B. G. Pullin. R. M. H. Randell, E. F. Reeve, P. Rendall, J. Richardson G. A. Roberts, Mrs. A. L. L. C. Robson, J. D. Robson, W. Roughton, A. R. P. Russell. F. J. Sadler, H. Sainsbury, F. J. Sarjeant, G. J. Scale, R. E. Scholefield, C. R. Scott, E. W. Selby, H. T. Sells, R. H. Shaw, O. B. Shelswell, E. W. H. Shenton, D. A. Shields, J. Simcock, J. D. Sinclair, J. A. Small, C. W. Smeeton, G. Smith, J. A. Smith, Sir T. R. H. Smith, Bt., J. C. Smyth, R. V. Solly, T. F. Southam, J. A. Southern, G. R. Sparrow, H. J. Spon, E. Stainer, L. E. Stamm, G. S. Stansfield, R. de S. Stawell, O. T. Stephenson, G. St. George, H. W. M. Strover, A. J. Swallow. F. T. Talbot, J. G. C. Taunton, A. Tennyson-Smith, G. C. Thomas, W. E. Thomas, W. T. Thomas, A. Thompson, C. Thompson, J. Thomson, M. Thomson, N. F. Ticehurst, S. A. Tidey, H. T. M. Townsend-Whitling, R. H. Trotter, A. J. Troughton, R. Turner. G. B. Wainwright, R. A. Walter, A. H. Warde, W. Washbourn, R. de C. Wheeler, W. S. Whitcombe, C. P. White, E. F. White, G. B. M. White, A. Wightwick, L. E. Wigram, S. M. Wilcox, R. Wilkins, D. J. Williams, H. C. Williams, J. A. Wilson, M. S. Wilson, G. M. Winter, G. V. Worthington, R. B. Wright, D. T. Wylie. E. C. Young, J. C. Young.

Scotland.

THE MINISTRY OF HEALTH.

WHEN the Ministry of Health Bill was made public in November last it was considered expedient to form in Scotland a temporary council or committee drawn from the recognized official medical bodies, to collect and formulate the views of Scottish practitioners. The proposal was considered by the Scottish Committee of the British Medical Association at a meeting in Edinburgh on January 4th, and it was agreed to co-operate with the other official medical bodies in the formation of such a committee. At a conference held on the same date, to which were invited representatives of the Scottish Branch of the General Medical Council, the Scottish Universities, the Scottish Royal Medical Corporations, the Scottish Committee of the British Medical Association, and the Association of Medical Officers of Health, it was agreed to form a committee—to be known as the Scottish Ministry of Health Committee—for the purpose of collecting and formulating the views of the Scottish members of the medical profession on the proposals under discussion for the establishment of a Ministry of Health, and on other important problems of medical reconstruction.

It was decided that the committee should consist of 44 members, made up as follows:

Scottish members of the Scottish Committee of the British Medical Association	18
Members of the Scottish Branch of the General Medical Council	9
One representative from each of the Medical Faculties of the Scottish Universities ...	4
Two representatives from each of the other licensing bodies in Scotland	6
Two representatives from the Association of Medical Officers of Health	2
One representative from the Scottish Association of Medical Women	1
Four members to be co-opted later	4
	44

At the first meeting office-bearers were appointed as follows: Chairman, Sir Donald MacAlister. Vice-Chairmen, the Presidents of the Royal Medical Corporations, the Direct Representative for Scotland on the General Medical Council, the Chairman of the Scottish Committee, and Dr. Goff (Bothwell). Secretary, Dr. Frederick K. Smith (Aberdeen). It was agreed that the office-bearers should form a Business Subcommittee to prepare business for the full committee.

The committee has met twice to consider the Ministry of Health Bills as published in November, 1918, and February, 1919. Each clause in the bills was discussed, and various suggested amendments were considered. Ultimately it was resolved to communicate the following to the authorities concerned:

1. That provision ought to be made by direct enactment in the Ministry of Health Bill for the transfer to the Minister of Health of the administration of the Anatomy Acts, and to the Scottish Board of Health of the administrative work of the Highlands and Islands Medical Service Board.
2. That with regard to the constitution of the Scottish Board of Health, the proposed minimum of medical representation—namely, one member—is totally inadequate, and that not less than one-third of the members of the Board ought to be registered medical practitioners; and also that the special provision that a medical member of the Board should be the holder of a "diploma in sanitary science, public health, or State medicine under Section 21 of the Medical Act, 1886," is unnecessary, and should be omitted.

The Secretary of State for Scotland said on March 11th, in reply to Mr. Cathcart Wason, that the Highlands and Islands (Medical Service) Grant Act, 1913, provided for the payment of £42,000 a year for medical service in that area and the transfer of powers to the Ministry of Health would not affect that specific appropriation.

HEALTH IN THE HIGHLANDS.

Dr. Lachlan Grant, whose long connexion with Ballachulish as medical officer enables him to speak with special knowledge, gives an interesting account of the conditions of life and health in the Highlands in a paper reprinted from the *Caledonian Medical Journal* for January. Although the land of brown heath and shaggy wood does not offer riches to the cultivator there are commercial possibilities in farming by scientific method, the utilization of electrical power, fishing, and afforestation, which have hitherto been to a considerable extent neglected. Dr. Grant expresses the belief that most of the areas now allowed to run to waste and many of the deer forests will soon be things of the past, but it is to be feared that the best of Scotland's manhood will still continue to be attracted by the opportunities of a richer life overseas. Dr. Grant deals with the housing question in a somewhat optimistic spirit. All will agree that in the interest of the public health and the amenities of life an "elastic and comprehensive scheme" is imperatively required; the difficulty is to frame such a scheme and then to get it carried through a legislature. Although the Highlander is still, as the war has abundantly shown, hardy beyond most classes, men, women, and children suffer from bad housing, wrong diet, and neglect of hygiene, and thus conditions are produced which make for the degeneration of the race. The root of the evil is poverty, and this can only be remedied by the intelligent use of natural resources and industrial development. The chief obstacle to this is the difficulty of transport, which may be to a considerable extent overcome by the application of modern methods, especially the motor boat. The scope of the aeroplane seems likely to be limited by the want of landing grounds. Dr. Grant considers that, though the Highlands and Islands Medical Service Act is good, it should be replaced by a more generous scheme. He urges the provision of better housing and surgery accommodation, arrangements for the relief of doctors when overworked or struck down by illness in remote parts, improvement of the economic conditions of the service, and the grant of pensions to men who have spent themselves in the work. He also insists on the need of school clinics, more local hospitals with maternity wards and some system for the removal of serious cases to city hospitals, periodical visits by skilled dentists, and more maternity nurses in outlying districts. The powers of the medical officers of health should be enlarged, and there should be a special Highlands department in the proposed Health Ministry. We commend Dr. Grant's suggestions to the attention of all interested in the prosperity of the Highlands, which are a national asset of the highest value as a breeding ground of men who deserve well of the State, a field for manly sport which is a training for war, a source of new vigour to the wearied intellectual toiler, and a joy for ever to lovers of things of natural beauty.

Correspondence.

A RURAL VIEW OF SCHEMES FOR NATIONAL MEDICAL SERVICES.

SIR,—I have been much interested in the schemes for a state medical service suggested by Sir Bertrand Dawson, Dr. Howarth and Dr. Richmond, and others. Whether such schemes would be conducive or not to the public welfare, or of benefit to the medical profession, I do not presume to argue. But the airy way in which all pass over rural conditions is almost fatal to their schemes. I would suggest that these writers, and others who may think of evolving schemes, should spend at least two months working in a rural—not semi-rural—practice during the winter months. They would then realize the futility of their schemes as applied to rural conditions, and the totally inadequate scale of remuneration suggested. The present rate of payment under the Insurance Acts for such work is as bad as it can be. I may add that, speaking for myself, nearly all my work is done by visiting, and that surgery work, with the exception of dispensing, is almost negligible.—I am, etc.,

Wrington, Somerset, March 10th. HUBERT C. BRISTOWE.

THE IDEAL OF THE PROFESSION.

SIR,—I have been much struck of late by one characteristic of letters of correspondents, and of views expressed in certain meetings purporting to represent the medical profession. That to which I refer is the reiterated theme, "What shall I get?" "How shall we be compensated?" "How shall we defend ourselves from the Government?" Surely this attitude of mind is entirely foreign to the

highest ideals which should, and in the main have, animated the best workers of our profession.

The war perhaps more than any other emergency has shown that the members of the medical profession are good citizens and patriots first, imbued with a love of their country, and enthusiasm for their profession. In the changed world in which we find ourselves, surely our first thought ought to be, "How are we going to organize the profession throughout, so as to be a more efficient instrument for carrying out the many branches of work which the community requires of us?" Not how are we going to thwart the Government and say "hands off"? but how are we going to advise the Government, whom we have taken our share in electing as our leaders, and through whom (for that is what they are there for) we are going to modernize the profession to be best fitted for fulfilling the heavy responsibilities which the needs of the country throw upon us? We have got to be an A1 nation, and the sound advice of the medical profession will be one of the chief factors in forming A1 citizens.

The question of fees, remuneration, and rewards is as important to us as to any other class of the community, and there should be a special department to watch our financial interests. Many of us have suffered as a result of the war, some more than others; it is inevitable that sacrifices should be unequal, and it ought to be the duty of the profession to see that hard cases are investigated and, as far as may be, relieved. But with shame I noticed that some members of the profession suggested that we should follow the example of certain trades—which every decent citizen deplores—and try to make the whole community suffer to gain our ends.

What could be more foreign to every tradition of the profession?—we, who are the trustees of knowledge obtained by the work and devotion, and sometimes lives, of an illustrious brotherhood of famous men.

For the purpose of reconstruction it is necessary for every member of the profession to discard any mental bias which self-interest in his particular branch of work may have given him, whether he be consultant, specialist, member of hospital staff, or general practitioner.

What I wish to emphasize is, that the last four and a half years have altered, or should have altered, the outlook of every one. If energy and devotion to duty are needed for war, surely in peace the same qualities are as much worth while for our country, redeemed at such a price; and the unity of the profession is required first and foremost for this purpose.—I am, etc.,

February 25th. COLONEL R.A.M.C.(T.F.).

PROHIBITION OF UNQUALIFIED PRACTICE.

SIR,—It is to be hoped that steps will be taken by the British Medical Association to effect, under a Ministry of Health Act, due and proper protection of sick persons from the dangers of unqualified medical and surgical practice. The evils of unqualified dental practice have been lately fully exposed by the report, just issued, of the Departmental Committee; these evils are small in comparison with those which result from charlatans in medicine and surgery. Protection is now afforded under war legislation to persons suffering from specific diseases, in that none but registered practitioners can treat such cases; and unqualified midwifery practice is also banned by law. No Ministry of Health will be sound unless the treatment of all diseased conditions is placed in the hands of lawful practitioners, and penal measures of an effective character made possible against quackery.

The medical profession deserves well of the country; it has met the almost overwhelming claims made upon it by the Government without demur or delay, and has not sought, by strikes or threats of strikes, or trade union bluster, to make capital out of the death struggle which engaged the empire. The least the country can do as a slight recognition of the valuable skilled service given so generously is to grant to the registered the monopoly of the treatment of disease, especially as by doing this it will afford equal protection to the public and greater security to public health. The existing Medical Acts, as is well known, only protect scheduled titles and not practice. Unqualified practitioners abound in this country, and amongst them are numerous aliens, using titles M.D.Berlin, M.D.Vienna, LL.D.Vienna, and whether they possess these degrees or not is immaterial. It protects them from prosecution under Section 40 of the Medical Act, 1858. Whilst our members have joined up, given up lucrative practices, lost their lives, their health, these aliens and other unqualified persons have, as "osteopaths" and "specialists" self-styled, been making handsome incomes, safe and secure from any danger of conscription or active service. It is high time that a clean sweep be made of these persons, who trade upon the credulity of the public; unqualified practice of every description must be suppressed as a fraud and a danger to public health. This we have a right to insist upon, and it must be clearly understood by the Government that no Ministry of Health Act will be satisfactory to us unless it deals effectively with this pernicious scandal. Dr. Addison is now in a position to effect this, and no one knows better than he the absolute necessity for the due measure of protection which we registered practitioners claim, not only in our own interests, but in the interests of public health.—I am, etc.,

London, W.C., March 11th. A. GEORGE BATEMAN.

URETERS AND THEIR ORIFICES IN GUNSHOT WOUNDS OF THE SPINE.

SIR,—My observation that my article on prophylactic cystotomy in the paraplegic bladder was without effect on Colonel Fullerton and his colleagues, has been taken to mean (1) that the method was not considered and tried, (2) that it had no effect on the surgical practice in these cases.

I am extremely sorry to have written so loosely that there should have been a doubt in the matter, the more so that this has apparently hurt the feelings of a group of surgeons in France of which Colonel Fraser is the able champion. My meaning, which certainly should have been stated at full length, was that the article had no general effect on the method of treating these cases. I further stated that the stream of cases dying of catheter infection continued unabated.

These statements are capable of proof. From October 1st, 1916, to December 31st, 1917, I had the opportunity of examining or getting full notes of 369 cases of paraplegia—of these 110 (29.81 per cent.), about one-third, died. With a very few exceptions, when haemothorax was a complication, death was due to septic pyelonephritis the result of catheter infection in the first few days after the injury.

This only represents the mortality of these 369 cases in a limited period of time. The real mortality is very much higher, and from my experience of the later stages of such cases, I should say that the mortality from pyelonephritis is very moderately stated at 80 per cent. In a number of these cases cystotomy had been performed after the bladder was infected. I could find no case in which the bladder had been drained before a catheter was passed.

Colonel Fraser states (BRITISH MEDICAL JOURNAL, March 8th, 1919) that the method I advocated was practised at the Boulogne base in 1915, and Colonel Fullerton says it had already been tried "when hospitals began work in France." Base hospitals, I suppose. Does Colonel Fraser wish us to understand that the paraplegics reached the Boulogne base without having a catheter passed? If not, I am afraid he is confusing the drainage of a catheter infected bladder with drainage of a bladder before any catheter has been passed, which is a very different matter. Colonel Fraser goes on to say that after my article appeared, suprapubic drainage without catheter became the routine practice with himself and some other surgeons. It is very gratifying to know this, and to realize that in the hands of Colonel Fraser and some of his colleagues the method had a fair start.

We must leave Colonel Fraser now, for he has evidently no more first-hand knowledge of these cases, and turn to Colonel Fullerton for information. The method, he says (BRITISH MEDICAL JOURNAL, March 1st, 1919), was tried and rejected owing to the "practical difficulty of nursing of such cases." When we remember that at that time the only alternative method had a mortality of 80 per cent., these difficulties of nursing must have been very formidable, and it would be of practical interest to know what they were.

I have before me the notes of the only two cases I have seen that were treated by prophylactic cystotomy. Both were operated on at a Canadian casualty clearing station. There was no leakage alongside the cystotomy tube at any time. There was mild alkaline cystitis in both, which

cleared up under treatment, leaving a sterile urine. There was no pyelonephritis in either case. The bladder was allowed to heal up when the second stage commenced, and in one case the patient eventually regained voluntary control for ten minutes after the call.

One final word. I protested against Colonel Fullerton attributing to Dr. Fearnsides work done by myself. To this he replies that "Dr. Fearnsides's excellent article is familiar to everyone as chiefly a review of all previous work." Possibly it may be; but this does not explain, and certainly could not excuse, Colonel Fullerton quoting the words I wrote, and placing them under "Dr. Fearnsides points out."—I am, etc.,

London, W., March 11th. J. W. Thomson Walker.

THE STATICS OF THE FEMALE PELVIC VISCERA.

Sir,—As my name was mentioned in your columns of March 1st by the reviewer of a book on the statics of the female pelvic viscera, I must say that I have not noticed any change in the structure of the female pelvis. Why discuss *ad nauseam* matters that have been settled by direct observation and experiment? My own work and that of others has been described in my article in Eden and Lockyer's *System of Gynaecology*, and in various other places. But let me say once more that if you will take any case of uterine prolapse and remove the upper half of the anterior vaginal wall, going well back on each side of the cervix, you will expose the two lateral fibro-muscular pedicles of the uterus, the parametria, which carry the blood supply of the organ ensheathed in connective tissue and unstriped muscle. If you will now amputate the cervix and stitch together in front of the stump thereof the tissues you have cut away from the sides thereof, you will cure the prolapse so far as the uterus is concerned. The lower part of the vaginal walls and the perineum may require attention; but it is the chain that keeps the dog at home and not the gate of the garden. Stitching the edges of the levatores together is a step in the repair of the perineum; but to rely upon it for the cure of prolapse of the uterus would be like offering garters to a man who requires braces.

A writer in the *Medical Press and Circular* stated the other day (February 19th) that "the cure of prolapse is still a problem." But surely each should speak for himself. I know a dozen operators to whom the cure of prolapse presents no problem, but who secure it with monotonous regularity without using either clumsy devices like interposition or suspension done by the abdominal route. When one has to deal with six or eight cases of a mechanical condition every week, year after year, one naturally discovers the quickest and easiest way of securing both good immediate results and freedom from recurrence.

These things are on view at St. Mary's Hospital every day except Sundays, and also at the Manchester Royal Infirmary on Tuesdays and Fridays.—I am, etc.,

Manchester, March 10th. W. E. Fothergill.

METHODS OF INFANT FEEDING.

Sir,—In answer to Dr. G. H. Hickling's letter, the point about which we do not agree is the interval between feeds. Perhaps I did not make it clear enough that the two-hourly interval was only for the first few weeks of the infant's life. I quite admit that it is frequently possible to lengthen the times between feeds to three hours after the first three or four weeks, provided that the baby is satisfied, gains weight, and sleeps well at night.

In reply to Dr. Hickling's point that mothers of the working class do not have time to feed their babies two-hourly—it is my experience that these women always have someone staying in the house to help them for the first three or four weeks, and it is easy for the mother who is in bed to feed the baby while the other woman does the work; it is much better and more restful for her to do this than to hear the baby crying. For many young babies, even if they are allowed to take as much as they like, cannot hold sufficient to last them the three hours, consequently they wake up about two hours after a bottle and cry till the next feed is due. If it is reasonable to say that babies require different amounts of food, it is surely common sense that some have a naturally smaller capacity, and so one baby may do well on three-hourly feeds and another badly—four-hourly feeds of course are very much worse.

But the main object I had in writing on this subject was to draw attention to the fact that the *total quantity of food* given to babies at many hospitals and infant welfare centres is quite inadequate. I have known of a 10 lb. baby fed at three-hourly intervals, giving a total of seven feeds in the twenty-four hours, and getting only 2 oz. a feed during the second week—that is, a total of 14 oz. of food a day, which I am sure Dr. Hickling will agree is, to say the least of it, insufficient. It is the small measured feeds without making any allowance for the size or natural appetite of the baby which I so strongly condemn. It is babies fed on this plan to whose pitiful cries I referred, for I have lived in the same house with them, and suffered much in consequence.—I am, etc.,

Limpsfield, March 7th. G. D. Laing.

HOSPITALS FOR MIDDLE-CLASS PATIENTS: THE RED CROSS SOCIETY.

Sir,—The desirability of providing pay hospitals for middle-class patients has often been pointed out, and many who are in favour of such hospitals will be interested to hear whether the Red Cross Society will indirectly help such a scheme.

Very many patients of the middle classes are quite unable to pay the charges of the average nursing homes during a prolonged illness. If admitted into a general hospital, as paying patients, they occupy beds which ought to be reserved, and are badly needed, for the poor; and other very important objections could be added. Some patients are able to engage a trained nurse, but for many this is most difficult and inconvenient, owing to the extra strain in the cooking, etc., for the nurse thus thrown on the household; and in these times so often the help of a servant, or of an additional servant, cannot possibly be obtained.

Pay hospitals for patients of this class, where the charges would be under four guineas weekly, and reduced to the lowest possible amount, would be most helpful. In all such hospitals the patients should, of course, be treated by their own private medical attendant, who would be paid by the patient separately for his services. The need for such hospitals is greatest in medical cases, especially in prolonged illnesses, and it has never been greater than during the last twelve months. The difficulty in such a scheme is the practical one of the expenses. At first no doubt, in these times, the difficulty would be great, but by careful management the money paid by the patients would soon clear the expenses; it could not do more. We have also the difficulty of finding a committee willing to attempt such a scheme.

Possibly the Red Cross Society might be willing to help indirectly. In all our large towns many Red Cross hospitals will soon be closed. Large numbers of Red Cross nurses and men of the R.A.M.C. will soon be discharged, and we have now a favourable opportunity for the trial of such a scheme. In some of our large towns one such hospital, with a staff of Red Cross nurses and men discharged from the R.A.M.C., might be retained as a pay hospital for middle-class patients, under the charge of a special committee.

It is to be hoped that medical men and others who may be able to advise the Red Cross Society will urge the careful consideration of this matter at an early date.—I am, etc.,

March 5th. R. T. W.

THE SELECTION OF RESEARCH WORKERS.

Sir,—The following figures may be of interest:

During my fifteen years as head of a laboratory I have had 37 researchers associated with me. Each of these was selected by open competition. Of the 37, I should, roughly, grade 12 as being "first class," and 5 of these found it necessary to give up research owing to lack of prospect in that direction; 11 I should grade as "good, sound workers," but not first-class brains (possibly the "laborious mediocrities" of your leading article of last week), and of these ultimately 6 passed into medical practice for financial reasons; 14 proved unsuited for research after a careful trial.

Various morals might be drawn from these figures, but,

at all events, it would look as if there were a two to one chance in favour of selecting a man who will not waste your outlay on him.

I enclose my card, and am, etc.,

March 10th. PATHOLOGY.

ASYLUM MEDICAL OFFICERS.

SIR,—The grievances of asylum medical officers need full ventilation. They are underpaid and overworked, and unsympathetically controlled. When an officer leaves the asylum to go out and take exercise he should give up his keys to the medical officer on duty, and should not be checked or stopped by any gatekeeper or subordinate. On his return he should get his keys from the medical officer on duty and take up his work again. Every medical officer of an asylum should have a house within the grounds of the institution. It is a terrible life to lead, and every relaxation and possible comfort should be available.

I cannot think how medical men take up such underpaid and uncomfortable billets. Reform after reform is needed.—I am, etc.,

March 3rd. ANTIPATICA.

Obituary.

COLONEL C. M. BEGG, C.B., C.M.G.,

Director of Medical Services, New Zealand Expeditionary Force.

COLONEL CHARLES MACKIE BEGG, who died suddenly on February 2nd from pneumonia following influenza, was born at Dunedin in 1879, the fourth son of the late Alexander Campbell Begg. After a distinguished career as a student at Edinburgh University he graduated M.B., Ch.B. in 1903, and subsequently took the M.D. degree and the diplomas of F.R.C.S.E. and F.R.C.P.E. During the Somaliland fighting in 1903 he served as medical officer on the transport *Itaura;* after, he returned to New Zealand, where he built up a large and lucrative practice in Wellington. He also took great interest in the Territorial service. On the outbreak of the war he volunteered for service, and left New Zealand with the main body of the N.Z.E.F. as lieutenant-colonel in charge of the ambulance. He was present at the fighting on the Canal in 1915. He went to Gallipoli with the Anzacs on April 25th, 1915, and on June 27th was slightly wounded in the knee by a shell. He returned to duty after a few days' absence, but later on developed dysentery, and was invalided after the heavy fighting in August. He returned in November as temporary colonel and A.D.M.S. to the New Zealand and Australian Divisions, and remained in Gallipoli till the evacuation. He then went back to Egypt, where he became colonel and A.D.M.S. to the New Zealand Division. For his services at Gallipoli he was mentioned in dispatches and received the C.M.G. After further service in Egypt he landed in France with the New Zealanders, being present at the fighting at Armentières and on the Somme in 1916. On October 20th, 1916, he became D.D.M.S. to the Second Anzac Corps, which subsequently became the XXII Corps, and saw fighting around Ypres, Messines, La Basse Ville, and later on in the great German offensive he worked in conjunction with the French army attacking west of Rheims. For his services in France he was twice mentioned in dispatches and was awarded the C.B. He was also mentioned in the French *Ordre de jour* and awarded the Croix de Guerre. He became D.M.S. of the New Zealand Expeditionary Force on December 1st, 1918, and retained the post till his death. A man of sterling qualities and of great administrative and professional ability, his death will be a serious loss to the medical services of New Zealand. To the officers who worked under him he was always a loyal friend, and by none will he be more missed than by the medical officers of the main body who had worked under his command. He was a man of conspicuous ability, a good organizer, and excellent administrator. As one who had to work with him during the period he was in England, I can state that he was a pleasant colleague and always endeavoured to do his duty in a manner that reflected credit on the corps of which he was the chief. His death is greatly deplored by all officers and other ranks of the Head Quarters Staff and by the whole New Zealand Medical Corps.

B. M.

GEORGE CUNNINGHAM, M.A.CANTAB., D.M.D.HARV., L.D.S.

GEORGE CUNNINGHAM, the well known dental surgeon, who practised in Cambridge and London, died in a public nursing institution, on March 5th, from the effects of influenza on a constitution already enfeebled by chronic bronchitis. He was 67 years of age, and in his time had filled many public offices; he had been at various times senior dental surgeon to the London Hospital, lecturer on operative dental surgery at the National Dental College and Hospital, lecturer on dental anatomy and surgery in the University of Cambridge, and principal of the Institute of Dental Technology, London.

His appointment by the Home Office to report upon the "Use of phosphorus in the manufacture of lucifer matches" led to considerable improvements in match factories, which resulted in the practical banishment of phosphorus necrosis from among the workers. For this work, and also for his labours in connexion with the statistical tables relating to the incidence of dental caries amongst the children of the poorer classes, which were published by the British Dental Association, he was given a civil list pension of £50 a year by Mr. Asquith during his Premiership.

Medical meetings in Cambridge, whether of the British Medical Association or other bodies, always found in George Cunningham an active local worker and organizer. In his own particular specialty he was well known throughout the country as one of its most strenuous workers in the cause of public health. His devotion to this work was so great that he neglected in great measure the excellent and high class practice he once maintained in Cambridge, and consequently found himself in later life in straitened circumstances.

His latest efforts were directed towards popularizing dentistry among the masses by means of a cinema film which he had produced and exhibited before critical professional audiences in Stockholm and Paris with considerable success. At the moment of his fatal illness he was seeking a passport to enable him to educate the soldiers of the army of occupation on the Rhine in the care of the teeth by means of a special cinema film he had designed.

His remains were cremated at Golders Green on March 8th.

RICHARD WHISH BRIGSTOCKE,

Formerly Lecturer, Medical School, Beyrout, Syria.

DR. R. W. BRIGSTOCKE, who recently died at an advanced age at Scole, Norfolk, had an interesting and varied career. He received his medical education at St. Bartholomew's Hospital when Sir James Paget was warden. He took the diplomas of M.R.C.S. and L.S.A. in 1859, and entered the navy as surgeon. He served in ships engaged in the suppression of the slave trade, and while thus employed accompanied the expedition which found David Livingstone, with whom he stayed for some time. After leaving the navy, and having obtained the degree of M.D. in Constantinople, Dr. Brigstocke settled in Beyrout; for forty years he had a very large practice in that cosmopolitan city, often going long journeys on horseback into the mountainous districts of Syria. He was an accomplished linguist, and when lecturer on obstetrics, gynaecology, and diseases of children at the Syrian Protestant College and medical school, Beyrout (1870–1882), lectured both in Arabic and English. For services rendered during the cholera epidemic in 1896 Dr. Brigstocke received the Order of the Medjidie, 3rd class, and for similar work among the Italian colony in Beyrout was made Chevalier of the Order of St. Maurice and Lazare by the King of Italy. When he returned to England he settled at Scole, and became an enthusiastic gardener; endowed with great physical strength for his years, he worked in his garden from morn till night, and wielded the axe with Gladstonian skill. He was a staunch churchman, and identified himself with the Board of Missions, serving on its committee. Dr. Brigstocke was a delightful companion and had many friends, not only in this country but also in the Far East. His wife, to whom he had been married fifty-three years, survives him, and he leaves a family of four daughters and two sons, the eldest, Dr. Percy Brigstocke, a medical missionary before the war in

Bagdad, Damascus, and Gaza, and during the war an officer of the R.A.M.C. in Egypt and France.

Dr. MICHAEL BEVERLEY, to whose tribute to Dr. Brigstocke in the *Eastern Daily Press* we are indebted for these facts, adds the following interesting note:

It will interest many of your readers to learn that the Brigstockes are descendants by marriage of the author of the *Religio Medici*. It is recorded in the preface of the "Posthumous works of the learned Sir Thomas Browne, Kt., M.D., late of Norwich, the public is here presented with manuscripts for which we are obliged to Owen Brigstocke, Esq., grandson by marriage to the author." This is clearly seen on reference to the late Mr. Charles Williams's genealogy of Sir Thomas Browne. "Owen Brigstocke married Anne, the daughter and co-heiress of her grandfather, Sir Thomas Browne, who left his property to his grand-nephew, Owen Brigstocke." My old friend, although ignorant of his connexion with so distinguished an ancestor, told me that he was descended from this Owen Brigstocke, and promised to try to get the pedigree up to date. His long illness and death has prevented this.

DR. ARTHUR CONNING HARTLEY died on March 5th at age of 54 at Bedford. He was born in Scotland and received his medical education at Edinburgh University, graduating M.B. and C.M. in 1888. During his student days he took honours in most classes, and also entered into the life of the university, especially in the Rifle Company of the Queen's Brigade, in which he obtained many shooting prizes, and also in the work of the students' council. After qualifying he was, for a year, resident medical officer of Chalmers Hospital, Edinburgh; and also house-surgeon at the Royal Maternity and Simpson Memorial Hospital, Edinburgh. In 1891 he obtained the M.D. degree, and in 1893 the F.R.C.S.Edin. Dr. Hartley began practice in Bedford in 1892, where he soon secured the confidence and affection of a large number of patients in the town and county. He was a great believer in post-graduate courses for practitioners, and paid frequent visits, during his holidays, to Edinburgh for this purpose. He was medical examiner and referee for a large number of life assurance companies, and held the post of Admiralty surgeon for Bedford and district. He had served as president of the Bedford Medical Society and chairman of the Beds and Herts Division of the British Medical Association, and in 1912 he was elected president of the South Midland Branch of the British Medical Association. Dr. Hartley took an active share in starting both the Bedford District Nursing Association and the Bedfordshire Rural Nursing Association, and he served on the Executive Committee of the local branch of the Society for the Prevention of Cruelty to Children. He was enthusiastic in support of universal military service, and himself served twenty-eight years in many capacities in the Volunteer and Territorial forces under three Sovereigns. He received King Edward's silver medal for long service in 1909, and the Territorial Decoration in 1917, and was on service as major in the R.A.M.C.(T.), attached to the Head Quarters Staff of the East Anglian Royal Engineers, at the beginning of the war. In November, 1917, he relinquished his commission on account of ill health, and was given the permanent rank of major. In 1896 he was awarded the testimonial of the Royal Humane Society for rescuing a girl from the flooded Ouse. Dr. Hartley was a lifelong advocate of total abstinence, and for this and other reasons he supported all organizations that had for their object the keeping of the youth of both sexes constantly interested and occupied with healthy and interesting work, athletic sports, and literary pursuits. During the war he interested himself greatly to lessen alcoholism, especially amongst women, and in the observance of Sunday as a day of rest for all workers, especially in munitions areas, and in the promotion and completion of the "summer-time" Act. In 1902 Dr. Hartley married Margaret, eldest daughter of the late James Stewart, M.A.Oxon., who survives him, with three daughters and one son.

DR. THOMAS HAMPTON of Grosmont, Hereford, who died on February 13th, received his medical education at St. Bartholomew's Hospital, took the diplomas of M.R.C.S., L.R.C.P.Lond. in 1895, and graduated M.B.Lond. in 1901. After serving as house-physician to St. Bartholomew's Hospital and to the Metropolitan Hospital, and as resident medical officer to the Royal Chest Hospital, he settled in practice at Grosmont, where he was highly esteemed and made many friends. He was a member of the Hereford Division of the British Medical Association. Dr. C. Firmin Cuthbert (Gloucester) writes: He has been a staunch friend of mine all these years, and I have had an enormous number of opportunities of judging his sterling worth in practice. He was especially shrewd in the diagnosis of surgical emergencies arising out of medical cases, and never lost time—even at the greatest personal trouble and inconvenience to himself—in getting them operated on without delay. When Hampton made a diagnosis it was never very far off the mark. I have never forgotten the clear and definite clinical picture he drew in a case of subdiaphragmatic abscess following old ulcer of the stomach. It was operated on with perfect result, and the lady has been in good health ever since. (Such cases were not recognized twenty-one years ago as early and satisfactorily as they are at the present day.)

DR. WILLIAM MORTON HARMAN of Winchester died on February 12th, aged 77. He was a native of Ireland and received his education at the Carmichael School and Trinity College, Dublin. He graduated M.B.Dub. in 1866 and M.D. in 1887, and took the diploma of F.R.C.S.I. in 1883. He entered the Army Medical Service, and when he retired some twenty-five years ago with the rank of brigade surgeon he commenced practice in Winchester. He was a member of the Winchester Division of the British Medical Association and an ex-president of the Southern Branch, and was consulting physician to the Royal Hants County Hospital, Winchester. He was a member and for some time president of the Old Hampshire Field Club. Dr. John F. Briscoe (Boscombe) writes to give expression to the esteem and regard with which Dr. Harman was regarded in the Southern Branch of the British Medical Association, and especially in the Winchester Division, of which he was a member. He was a regular attendant at the meetings and took an active part in the discussions.

WE regret to record the death, from pneumonia after influenza, of Dr. F. W. S. DAVIES, senior anaesthetist to the King Edward VII Hospital, Cardiff, in his 54th year. He was a son of the late Mr. Francis Davies, of Merthyr Tydfil, was a student at Guy's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1890. He settled in Cardiff in partnership with the late Dr. Alfred Sheen; he was for a time secretary of the Cardiff Medical Society, and was a member of the Cardiff Naturalists' Society. He had served as medical officer and anaesthetist to the Glamorgan and Monmouthshire Hospital for French Wounded, Berck Plage, and at the time of his death was anaesthetist to the Welsh Metropolitan Military Hospital at Whitchurch, Cardiff.

DR. IVAR BANG, professor of physiological chemistry in the University of Lund, died recently while at work in his laboratory.

The Services.

THE NAVY ESTIMATES.

THE Navy Estimates for the year 1919-20 have been presented to Parliament. Among the estimates for the effective services the sum of £600,000 is allocated to medical establishments and services. The vote for this purpose provides for the cost of maintaining naval hospitals and other medical establishments at home and abroad; for outlay on medicines and medical stores for the Fleet; for expenditure in connexion with the treatment of officers and men on shore by private practitioners; and for miscellaneous disbursements on medical service. Medicines and medical stores comprise the provisions, stores, instruments, and appliances required for naval hospitals and Royal Marine infirmaries, etc., and for the sick bays of ships. The estimate for educational services includes provision for the expense of instruction at Cambridge University of young officers whose education in the Royal Naval Colleges was curtailed owing to the war.

FLEET SURGEON S. KEAYS, R.N. (retired), has been awarded the Greenwich Hospital Pension of £50 year in the vacancy caused by the death of Deputy Inspector-General George B. Murray, R.N. (retired).

Universities and Colleges.

THE COUNCIL OF THE ROYAL COLLEGE OF SURGEONS.

THE Secretary of the College has issued to the Fellows a circular informing them that a meeting of the Fellows will be held at the College on Thursday, July 3rd, at 2.30 p.m., for the election of two Fellows into the Council in the vacancies occasioned by the retirement in rotation of Sir Berkeley Moynihan and by the death of Mr. L. A. Dunn. Blank forms of the requisite notice from a candidate and of his nomination may be obtained on application to the secretary, and the same must be received by him duly filled up not later than on Monday, March 17th. A voting paper will be sent by post to each Fellow, whose address is registered at the College, on April 1st. Fellows are requested to give notice, without delay, of any change of address.

The following list shows the present composition of the Council; the dates after the names are those of election:

President.—Sir George Henry Makins, G.C.M.G., C.B., (1) 1903, (2) 1911, P. 1917.

Vice-Presidents.—Mr. W. F. Haslam, (1) 1908, (2) 1916; Sir John Bland-Sutton, (1) 1910, (2) 1918.

Other Members of Council.—Sir Anthony A. Bowlby, K.C.M.G., K.C.V.O., C.B., (1) 1904, (2) 1912; Mr. W. Harrison Cripps, (1) 1905 (substitute), (2) 1909, (3) 1917; Mr. Charters J. Symonds, C.B., (1) 1907, (2) 1915; Sir C. A. Ballance, K.C.M.G., C.B., M.V.O., (1) 1910 (substitute), (2) 1914; Mr. D'Arcy Power, 1912; Sir Berkeley G. A. Moynihan, 1912 (substitute till July, 1919); Mr. James Ernest Lane, 1913; Mr. H. J. Waring, 1913; Mr. W. Thorburn, C.B., 1914; Mr. W. McAdam Eccles, 1914; Mr. C. Ryall, C.B.E., (1) 1914 (substitute), (2) 1915; Mr. Walter G. Spencer, (1) 1915 (substitute), (2) 1918; Mr. Frederick Francis Burghard, C.B., 1915 (substitute till 1921); Sir Herbert F. Waterhouse, 1915; Mr. T. H. Openshaw, C.B., C.M.G., 1916; Mr. Raymond Johnson, O.B.E., 1916; Mr. Vincent Warren Low, C.B., (1) 1916 (substitute), (2) 1917; Mr. James Sherren, 1917; Sir John Lynn-Thomas, K.B.E., 1918; Mr. E. W. Hey Groves, 1918.

On account of the death of Mr. L. A. Dunn, who died after the notices of the election were issued last year, there has been one vacancy on the Council all through the past year.

There are only two vacancies, an unusually small number, on this occasion, as Sir George Makins, being President, does not retire. Sir Berkeley Moynihan's term as substitute expires, whilst the death of Mr. Dunn leaves the second vacancy; he was substitute in 1913 for Mr. Clinton Dent, who also died when a member of Council.

There are now five members representing the provinces, from Birmingham, Manchester, Leeds, Bristol, and Cardiff respectively, the remainder being London surgeons.

UNIVERSITY OF CAMBRIDGE.

THE next examination for the diploma in psychological medicine of the University of Cambridge will be held for Part I in October, 1919, and for Part II in December. The military special neurological hospitals are now recognized as institutions in which the clinical experience required for Part II may be obtained. Further particulars can be obtained on application to Dr. C. S. Myers, F.R.S., Secretary to the Managing Committee for the Diploma, Psychological Laboratory, Cambridge.

Medical News.

THE annual meeting of the Association for Promoting the Training and Supply of Midwives will be held at 10, Hyde Park Gardens, W.2, on March 20th, at 3 o'clock.

THE Municipal Council of Paris has decided in view of existing circumstances to raise the visiting fees of civil state practitioners and medical inspectors.

A NOTICE appeared in the *London Gazette* of February 21st, 1919, intimating that Sir John Lynn Thomas will in future use the name of Sir John Lynn-Thomas.

THE extension of the Calcutta School of Tropical Medicine, by the building of an institute of hygiene, is being begun, and it is hoped that the whole will be opened in June, 1920.

THE annual meeting of the British Association for the Advancement of Science, which has been interrupted for two years owing to the war, will be held this year at Bournemouth, from September 9th to 13th, under the presidency of Sir Charles Parsons.

A VISCOUNTCY of the United Kingdom has been conferred upon the Right Hon. Lord Finlay, late Lord Chancellor, who, it will be remembered, is a graduate of medicine in the University of Edinburgh and the son of a medical man, the late Dr. William Finlay of Edinburgh.

IT has been arranged that five thousand soldier students of the United States army shall be distributed among the universities of France. Sixteen hundred are now following courses in the various faculties, especially that of medicine, of the University of Bordeaux.

SURGEON VICE-ADMIRAL SIR WILLIAM NORMAN, Director-General Naval Medical Department, and Lieut.-General Sir John Goodwin, Director-General Army Medical Service, have been admitted honorary freemen of the Apothecaries' Society of London, and were afterwards entertained to dinner at the society's hall.

DR. LUIGI BOSSI, the well known professor of gynaecology in the University of Genoa, was shot in his consulting room at Milan on February 1st by the husband of a woman for whom he was in the act of prescribing. The murderer, a Tunisian from Monastir, next shot his wife and afterwards discharged his revolver into his own mouth.

THE English officers and soldiers prisoners of war, lately interned at Leysin for treatment, have now returned home, with the exception of some twenty privates, who remain to complete their cure in the spring. In all some thousand officers and men, tuberculous patients, selected from the German camps at various times by the Swiss medical commissions, have been at Leysin, and, with few exceptions, have returned to this country in good health with pleasant recollections of their stay in French Switzerland.

AT its meeting on February 24th the Executive Committee of the General Medical Council received a letter from the Belgian Medical and Pharmaceutical Society in England, expressing the thanks of the Belgian profession for the welcome and assistance they received in this country. At the same meeting the final step was taken for providing medical reciprocity with this country for members of the College of Physicians and Surgeons of Saskatchewan.

ON February 15th an inter-allied sanitary congress of aviation was opened in the Great Hall of the University of Rome. Great Britain was represented by Dr. Henry Head, Professor Dreyer, Lieut.-Colonel Flack, and Dr. Birley. The object of the congress was to establish international standards by which the aptitude of candidates for the air service will be tested; the criteria of fitness of the flying personnel in the air; the best means for the protection of airmen against great barometric depressions and cold at high altitudes; and hygienic rules for future civilian aviation, and related subjects.

DR. LOCKHART STEPHENS, C.B.E., has received an illuminated address from the medical officers working in the auxiliary hospitals of Hampshire, expressing their regret at his resignation of the post of County Director, British Red Cross Society, which he held since the early days of the war. The fifty-three signatories record their gratification that the post of County Director has been held by a medical man, and conclude by thanking Dr. Stephens for his courtesy and consideration to his colleagues in every part of the county. They attribute much of the great success the society has attained in Hampshire to his untiring efforts.

MENTION was made last week of the opinion expressed by the Society of Medical Officers of Health to the effect that the responsibilities of the Home Office with regard to the sanitary condition of factories, the prevention of industrial diseases, and the work of factory surgeons should be transferred to the Ministry of Health. This opinion is reinforced by a circular letter issued by the Association of Certifying Factory Surgeons. It proposes to amend Subsection 2 of Section 3 by adding "all or any of the powers and duties of the Secretary of State with respect to control of sanitation in factories and worshops, the appointment of medical men as inspectors of factories, and the appointment and duties of certifying surgeons."

IT is not quite easy to form a definite opinion as to the degree of the shortage of food in Germany, for the refusal of German authorities to accept the condition with regard to merchant ships rather discounted the stories that came from Germany. At a meeting of medical societies in Berlin on December 18th, 1918, Professor Rübner said that the danger was at first under-estimated, and implied that the effects of insufficient food were most marked in children. This agrees with information that comes to us from medical officers who have returned from the occupied territories. It appears to be established that cases of "war oedema," or "hunger oedema," common among prisoners of war in Germany, have also occurred among the civil population. It is a condition without fever, the main features being oedema and asthenia, sometimes preceded by diarrhoea and mucous colitis. The oedema involves principally the lower extremities and can be cured by rest in bed and by giving at least 100 grams of fat a day. It appears that the Allied Governments have now determined to use some of the ships which Germany will be required to hand over, for the supply of food to that country, and, presumably, Austria and Rumania.

THE members of the London Panel Committee entertained their chairman, Dr. H. J. Cardale, at lunch on March 4th, and presented him with a suitably-inscribed silver tray, together with a gift of jewellery to Mrs. Cardale. Sir James Galloway, K.B.E., C.B., who presided, paid fitting tribute to Dr. Cardale, who, he said, had presided over the Committee for four and a half years, during which time he had not missed a single meeting and had attended fully 90 per cent. of the sub-committee meetings, involving, as a later speaker computed, the sacrifice of a hundred half-days. Dr. H. G. Cowie also spoke in high terms of one who was at once a good chairman and a good colleague. In his response, after thanking the members warmly, Dr. Cardale referred with pride to the fact that the London Panel Committee had done something in its brief history to heal the breach which the Insurance Act had occasioned in the medical profession.

THE annual meeting of the Central Council for District Nursing in London was held in the Conference Hall, Local Government Board Offices, Whitehall, S.W., on February 25th. The objects of the Council are to systematize the arrangements for district nursing throughout the county of London, and to promote the adequacy and efficiency of such nursing. It is composed of representatives of the various interests concerned with district nursing. The chairman and vice-chairman are Sir William Collins, M.D., and Sir Thomas Barlow, Bt., M.D., respectively. The chairman of the Executive Committee is Sir Arthur Downes, M.D., senior medical inspector for Poor Law, Local Government Board. In the annual report for 1918 the Council states that its fourth year of work confirms and emphasizes the invaluable service of the voluntary district nursing associations to national health and welfare. With depleted staffs the associations had to face demands of unexampled severity, and during the epidemic of influenza their resources were strained to the utmost. By the employment of nurses and women of varying degrees of training or experience, to assist the fully trained nurses, all that was possible was done to meet the crisis, and the Council pays a tribute to the ability and devoted courage shown by superintendents and nurses alike.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

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IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

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1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

The address of the Central Medical War Committee for England and Wales is 429, Strand, London, W.C.2; that of the Reference Committee of the Royal Colleges in London is the Examination Hall, 8, Queen Square, Bloomsbury, W.C.1; and that of the Scottish Medical Service Emergency Committee is Royal College of Physicians, Edinburgh.

LETTERS, NOTES, ETC.

THE MEDICAL SICKNESS AND ACCIDENT SOCIETY.

AN OLD MEMBER expresses the hope that there will be a large attendance of members of the Medical Sickness and Accident Society at the annual meeting on March 25th in order that an effort should be made to rescind the resolution passed last year stopping the payment of a bonus to old members attaining the age limit.

TREATMENT OF INFLUENZA AND INFLUENZAL PNEUMONIA.

DR. W. THOMAS (Rhyl, N. Wales) writes: In the JOURNAL of March 1st, p. 246, Dr. Humphrey Davy extols turpentine inunctions in the treatment of pneumonia, and states also that turpentine given internally in capsules does good but that patients often revolt against it. For the last twenty-five or thirty years I have frequently prescribed turpentine in pneumonia, and often with very gratifying results. Given in the following mixture it seldom disagrees and patients hardly ever revolt against it:

℞ Ol. terebinth pur.	...	...	...	... ℥ij to ℥ss
Pulv. tragac. co.	...	...	...	... ℥j
Sp. ammon. arom.	...	...	...	... ℥iij
Aq. chloroformi	...	...	...	ad ℥viij

Misce. Sig.: Two tablespoonfuls every four hours.

Children take it even better than adults, in doses of 2 to 5 minims, and its effects on them is almost always good.

MENSTRUATION AFTER PROLONGED DORMANCY.

DR. JAMES OLIVER (London) writes: Since the outbreak of war in August, 1914, the number of cases showing a disposition to intermittent menstruation or of complete suspension of the menstrual function, without apparent reason and without any evidence of impairment of the health generally of the individual, has been increasing. Now just how long the uterus may under such circumstances maintain a state of dormancy without losing its power to function is a question of great scientific interest and importance, and one which is not touched on in any of our textbooks. I have at present under my care a single lady, aged 28, who has menstruated regularly during the last three months (December, 1918, and January and February of this year), and on each occasion for her wonted number of days (four), but who previously, although in apparent good health, had not menstruated since May, 1916. Here, then, is a case of complete dormancy of the uterus during the prolonged period of thirty months. Yet, when at last the menstrual discharge did make its appearance, it was in amount and colour and character generally as though the menstrual function had never been in abeyance at all.

SHANTUNG CHRISTIAN UNIVERSITY.

DR. R. FLETCHER MOORSHEAD (19, Furnival Street, Holborn, E.C.4) writes to draw attention to an important development in the work of medical education under direct missionary auspices at the university centre of Tsinanfu, N. China. In 1904 there was established in that city what is known as the Shantung Christian University. Two missions were concerned in the enterprise, the American Presbyterian and the British Baptist, and the scheme embraced the teaching of medicine in the Chinese language. In 1910 school premises were opened, and in 1914 a modern hospital of 118 beds was built. Through an arrangement with the China Medical Board of the Rockefeller Foundation, a large body of medical students was transferred from the Union Medical College, Peking, to Tsinanfu in 1916, and new laboratories were added to the school building. That same year the China Medical Missionary Association urged upon missionary societies the policy of concentrating at the Tsinanfu School what they were attempting in Chinese medical education, and the British Advisory Board of Medical Missions strongly endorsed this proposal. Other British and American missions joined in the undertaking, and last year a British Joint Board, representative of four co-operating missionary societies—the B.M.S., L.M.S., S.P.G., and W.M.M.S.—was formed in London with the object of promoting the efficiency of this medical school. The students are drawn from all over China, and beyond the missionary possibilities the various professorships afford a field for research and study of diseases but little known in Europe or America, as also for practice demanding ability and resource. At present there are several vacancies on the teaching staff. Dr. Moorshead, who is honorary secretary of the Joint Board, will supply a report of the medical school and hospital, and give further information to any who may be interested.

COLLOSOL MANGANESE IN TOOTHACHE.

DR. DOUGLAS A. WOOD, M.B. (late A.M.O., Pinewood), Malvern, Jamaica, writes: In September, 1918, I gave a lady who had a severe toothache due to abscess an injection of collosol manganese (Crookes's); nine hours afterwards the pain had completely ceased, and all signs of inflammation and swelling disappeared in forty-eight hours. A cavity in the tooth had just previously been filled. The injection was given on the third day of pain. The tooth has given no further trouble for the last four months. I find 1 c.cm. injected subcutaneously into the abdominal wall most convenient.

THE following appointments of certifying factory surgeons are vacant: Bridgnorth (Salop), Harwich (Essex), Nantgaredig (Carmarthen).

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
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Whole single column	4	0	0
Whole page	12	0	0

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